

**UK and Gibraltar air quality
modelling for annual reporting
2006 on ambient air quality
assessment under Council
Directives 96/62/EC and
2002/3/EC relating to ozone in
ambient air**

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**Report to Department for Environment, Food and
Rural Affairs, the Scottish Executive, Welsh
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Environment in Northern Ireland and the
Government of Gibraltar**

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Executive Summary

Directive 96/62/EC on Ambient Air Quality Assessment and Management (the Framework Directive) establishes a framework under which the EU sets limit values or target values for the concentrations of specified air pollutants. Directive 2002/3/EC (the third Daughter Directive) sets Target Values (TVs) and Long-term Objectives (LTOs) to be achieved for ozone.

2006 is the third year for which an annual air quality assessment for the third Daughter Directive pollutants is required. A questionnaire has been completed for submission to the EU containing the results of this air quality assessment along with those required for the first and second Daughter Directives. The assessment takes the form of comparisons of measured and modelled air pollutant concentrations with the Target Values and Long-term Objectives set out in the Directives. Air quality modelling has been carried out to supplement the information available from the UK national air quality monitoring networks.

This report provides a summary of key results from the questionnaire and additional technical information on the modelling methods that have been used to assess the levels of ozone throughout the UK. This includes:

- Details of modelling methods
- Information on the verification of the models used and comparisons with data quality objectives (DQOs)
- Detailed modelling results and comparison with Target Values and Long-term Objectives.

Maps of background ozone concentrations in 2006 on a 1 km x 1 km grid have been prepared for the UK. The following metrics set out by the third Daughter Directive have been modelled:

- Number of days above $120 \mu\text{g m}^{-3}$ in 2006
- Number of days above $120 \mu\text{g m}^{-3}$ per year averaged over three years 2004-2006
- AOT40 wheat crops in 2006
- AOT40 wheat crops averaged over five years 2002-2006

The models used in this assessment have been selected based on a critical appraisal of the techniques available within the UK.

The UK has been divided into 43 zones for air quality assessment. There are 28 agglomeration zones (large urban areas) and 15 non-agglomeration zones. An assessment of measured levels of ozone in is also presented in this report. Gibraltar is comprised of a single non-agglomeration zone for which no modelling assessment has been undertaken but data from an automatic monitoring campaign is presented in this report. The exceedence status of the zones in the UK has been determined from a combination of monitoring data and model results. The exceedence status of the Gibraltar zone has been determined from monitoring data only. The results of the UK assessment are summarised in Tables E1 and E2 in terms of exceedences of Target Values (TV) and Long-term Objectives (LTO). Corresponding results for Gibraltar based on monitoring data only are presented in Tables E3 and E4.

Table E1 UK summary results of air quality assessment relative to the Target Values for ozone for 2010

<i>Target Value</i>	<i>Number of zones exceeding</i>
Max Daily 8-hour mean Target Value	none
AOT40 Target Value	none

Table E2 UK summary results of air quality assessment relative to the Long-term Objectives for ozone

<i>Long-term Objective</i>	<i>Number of zones exceeding</i>
Max Daily 8-hour mean Long-term Objective	43 zones (41 measured + 2 modelled)
AOT40 Long-term Objective	41 zones (32 measured + 9 modelled)

Table E3 Gibraltar summary results of air quality assessment relative to the Target Values for ozone for 2010

<i>Target Value</i>	<i>Number of zones exceeding</i>
Max Daily 8-hour mean Target Value	none
AOT40 Target Value	none

Table E4 Gibraltar summary results of air quality assessment relative to the Long-term Objectives for ozone

<i>Long-term Objective</i>	<i>Number of zones exceeding</i>
Max Daily 8-hour mean Long-term Objective	1 zone (measured)
AOT40 Long-term Objective	1 zone (measured)

Contents

1	Introduction	1
1.1	THE FRAMEWORK AND DAUGHTER DIRECTIVES	1
1.2	THIS REPORT	1
1.3	PRELIMINARY ASSESSMENTS AND DEFINITION OF ZONES	2
1.4	MONITORING SITES	7
2	Mapping Methods	8
2.1	MODELLING THE NUMBER OF DAYS EXCEEDING 120 $\mu\text{G M}^{-3}$ METRIC	8
2.1.1	Days greater than 120 $\mu\text{g m}^{-3}$ methodology	8
2.1.2	Verification of mapped number of days > 120 $\mu\text{g m}^{-3}$ values	13
2.1.3	Detailed comparison of model results with Target Values and Long-term Objectives	14
2.2	MODELLING THE AOT40 VEGETATION METRIC	16
2.2.1	AOT40 methodology	16
2.2.2	Verification of mapped AOT40 values	20
2.2.3	Detailed comparison of modelling results with limit values	21
3	Exceedence of the Target Value and Long-term Objective	23
3.1	RESULTS FOR UK IN 2006	23
3.2	MEASURED EXCEEDENCES IN UK IN 2006	25
3.3	RESULTS FOR GIBRALTAR IN 2006	54
3.4	MEASURED EXCEEDENCES IN GIBRALTAR IN 2006	54
4	Acknowledgements	56

Appendices

Appendix 1	National Network Monitoring Sites
Appendix 2	Monitoring Sites used to verify the Mapped Estimates

1 Introduction

1.1 THE FRAMEWORK AND DAUGHTER DIRECTIVES

Directive 96/62/EC on Ambient Air Quality Assessment and Management (the Framework Directive (Council Directive 96/62/EC)) establishes a framework under which the EU sets limit values or target values for the concentrations of specified air pollutants in ambient air. Directive 1999/30/EC (the first Daughter Directive, AQDD1) sets the limit values to be achieved for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particles and lead. Directive 2000/69/EC (the second Daughter Directive, AQDD2) sets limit values to be achieved for benzene and carbon monoxide. Directive 2002/3/EC (the third Daughter Directive, AQDD3) sets Target Values (TVs) and Long-term Objectives (LTOs) to be achieved for ozone.

The Framework Directive includes a requirement for Member States to undertake preliminary assessments of ambient air quality, prior to the implementation of the Daughter Directives under Article 5 this Directive. The objectives of these assessments are to establish estimates for the overall distribution and levels of pollutants, and to identify additional monitoring required to fulfil obligations within the Framework Directive. Reports describing the preliminary assessment for the UK for AQDD1, AQDD2 and AQDD3 have been prepared^{1,2,3,4}. The Daughter Directives define the number of air quality monitoring sites required on the basis of the concentrations of pollutants and population statistics. The number of monitoring sites required is significantly reduced if other means of assessment, in addition to fixed monitoring sites, are also available. Air quality modelling has therefore been carried out to supplement the information available from the UK national air quality monitoring networks and contribute to the assessments required by the Framework and subsequent Daughter Directives. Obligations for assessments in Gibraltar are entirely fulfilled by measurements.

1.2 THIS REPORT

The first and second Daughter Directives make provision for an annual air quality assessment for NO₂, PM₁₀, SO₂, CO and benzene. 2006 is the third year for which an annual air quality assessment is required for ozone as specified in the third Daughter Directive. A questionnaire has been completed for submission to the EU containing the results of this air quality assessment. A copy of the completed questionnaire for the UK and Gibraltar can be found on the Central Data Repository of the European Environment Agency⁵. The assessment takes the form of comparisons of measured and modelled air pollutant concentrations with the limit values set out in the Directives. This report details the results of annual air quality assessments undertaken to satisfy the UK and Gibraltar's obligation under the third Daughter Directive (AQDD3) and focuses on the modelling methodology for ozone. The air quality assessments for NO₂, PM₁₀, SO₂, CO and benzene are covered in a separate report⁶ that can be found on the National Air Quality Archive.

¹ Bush T (2000). Article 5 Assessment of Nitrogen Dioxide, PM10, sulphur dioxide and lead in the UK. Report to the Department for Environment, Food and Rural Affairs, the Scottish Executive, Welsh Assembly Government and the Department of the Environment in Northern Ireland. AEA Technology, Netcen report AEAT/R/ENV/0165.

[http://www.airquality.co.uk/archive/reports/cat09/0502100920_Art5_v9commission2\(final_draft\).pdf](http://www.airquality.co.uk/archive/reports/cat09/0502100920_Art5_v9commission2(final_draft).pdf)

² Bush T (2002) Preliminary Assessment of benzene and carbon monoxide levels in the UK. Report to the Department for Environment, Food and Rural Affairs, the Scottish Executive, Welsh Assembly Government and the Department of the Environment in Northern Ireland. AEA Technology, Netcen report AEAT/ENV/R/1333/Issue 1

http://www.airquality.co.uk/archive/reports/cat09/art5_dd2_v3aeat.pdf

³ Bush T and Kent A J (2003). Preliminary Assessment of ozone levels in the UK. Report to the Department for Environment, Food and Rural Affairs, the Scottish Executive, Welsh Assembly Government and the Department of the Environment in Northern Ireland. AEA Technology, Netcen report AEAT/ENV/R/1528/Issue 1.

http://www.airquality.co.uk/archive/reports/cat09/0506130933_o3dd1_art5_rep2.pdf

⁴ Bush T and Kent A J (2003) Preliminary assessment of air quality in Gibraltar. Report to the Gibraltar Environmental Agency. AEA Technology, Netcen report AEAT/ENV/R/1512/Issue1

⁵ CDR, 2006, <http://cdr.eionet.europa.eu/gb/eu/annualair>

Section 2 describes the modelling procedures used for estimation of ozone in the UK. These include:

- Information on the calibration and verification of the models
- Background ambient concentration maps
- Detailed model results and identification of modelled exceedences of TV and LTO

The following metrics relevant to the annual reporting of data to the Commission have been investigated:

- Number of days above $120 \mu\text{g m}^{-3}$ in 2006
- Number of days above $120 \mu\text{g m}^{-3}$ per year averaged over three years 2004-2006
- AOT40 wheat crops in 2006
- AOT40 wheat crops averaged over five years 2002-2006

The definitions of the metrics presented above and the Target Values and Long-term Objectives are given in Annex I of the Directive. In addition, Annex II of the Directive presents Alert and Information Thresholds designed to inform the public and organisations representing sensitive population groups on occasions when there is increased a risk to human health from exposure to elevated levels of ozone. Annex I and II are presented below.

Section 3 presents the exceedence status of zones in the UK in relation to the TV and LTO in 2006. These results are distinct from the modelled results presented in Section 2, as they also incorporate monitoring data from the national networks to determine the zone status.

Section 4 presents the exceedence information for Gibraltar in 2006. Information for the Gibraltar zone is limited to measured data from the continuous automatic monitoring campaign, no model output being available for Gibraltar at this time.

1.3 PRELIMINARY ASSESSMENTS AND DEFINITION OF ZONES

The preliminary assessment carried for AQDD1 defined a set of zones to be used for air quality assessments in the UK based on population and urban areas data from the 1991 UK Census. These data have now been updated using information on populations from the 2001 Census and land-use data from the Devolved Administrations. Updated zones are listed in Table 1.1 and illustrated in Figure 1.1. Information on the definition of zones is included in Form 2 of the questionnaire. The zone codes listed in Table 1.1 are used throughout the questionnaire. The population and area of each zone is also shown. The zones are of two types: agglomeration zones (continuous urban areas with a population in excess of 250,000) and non-agglomeration zones. There are 28 agglomeration zones and 15 non-agglomeration zones, giving a total of 43 zones in the UK. The non-agglomeration zones in England correspond to the Government Office Regions, while those in Scotland, Wales and Northern Ireland were defined in conjunction with the Devolved Administrations.

The preliminary assessment for ozone also defined the monitoring and modelling requirements for each zone based on an assessment of concentrations in relation to TVs and LTOs specified by AQDD3. The minimum monitoring requirement for ozone and NO_x in the majority of zones was found to be at least one monitoring site per zone, with the monitoring results to be supplemented with information from modelling studies.

⁶ Kent et al (2008). UK air quality modelling for annual reporting 2006 on ambient air quality assessment under Council Directives 96/62/EC, 1999/30/EC and 2000/69/EC. Report to the Department for Environment, Food and Rural Affairs, the Scottish Executive, Welsh Assembly Government and the Department of the Environment in Northern Ireland. AEA Energy & Environment report. AEAT/ENV/R/2502 Issue 1.

ANNEX I

DEFINITIONS, TARGET VALUES AND LONG-TERM OBJECTIVES FOR OZONE

I. Definitions

All values are to be expressed in $\mu\text{g}/\text{m}^3$. The volume must be standardised at the following conditions of temperature and pressure: 293 K and 101,3 kPa. The time is to be specified in Central European Time.

AOT40 (expressed in $(\mu\text{g}/\text{m}^3)\cdot\text{hours}$) means the sum of the difference between hourly concentrations greater than $80 \mu\text{g}/\text{m}^3$ (= 40 parts per billion) and $80 \mu\text{g}/\text{m}^3$ over a given period using only the 1 hour values measured between 8:00 and 20:00, Central European Time each day ^(f).

In order to be valid, the annual data on exceedances used to check compliance with the target values and long-term objectives below must meet the criteria laid down in Section II of Annex III.

II. Target values for ozone

	Parameter	Target value for 2010 (a) ^(f)
1. Target value for the protection of human health	Maximum daily 8-hour mean (b)	$120 \mu\text{g}/\text{m}^3$ not to be exceeded on more than 25 days per calendar year averaged over three years (c)
2. Target value for the protection of vegetation	AOT40, calculated from 1 h values from May to July	$18\,000 \mu\text{g}/\text{m}^3\cdot\text{h}$ averaged over five years (c)

(a) Compliance with target values will be assessed as of this value. That is, 2010 will be the first year the data for which is used in calculating compliance over the following three or five years, as appropriate.

(b) The maximum daily 8-hour mean concentration shall be selected by examining 8-hour running averages, calculated from hourly data and updated each hour. Each 8-hour average so calculated shall be assigned to the day on which it ends, i.e. the first calculation period for any one day will be the period from 17:00 on the previous day to 01:00 on that day; the last calculation period for any one day will be the period from 16:00 to 24:00 on the day.

(c) If the three or five year averages cannot be determined on the basis of a full and consecutive set of annual data, the minimum annual data required for checking compliance with the target values will be as follows:

- for the target value for the protection of human health: valid data for one year,
- for the target value for the protection of vegetation: valid data for three years.

(f) These target values and permitted exceedance are set without prejudice to the results of the studies and of the review, provided for in Article 11, which will take account of the different geographical and climatic situations in the European Community.

III. Long-term objectives for ozone

	Parameter	Long-term objective (a)
1. Long-term objective for the protection of human health	Maximum daily 8-hour mean within a calendar year	$120 \mu\text{g}/\text{m}^3$
2. Long-term objective for the protection of vegetation	AOT40, calculated from 1 h values from May to July	$6\,000 \mu\text{g}/\text{m}^3\cdot\text{h}$

(a) Community progress towards attaining the long-term objective using the year 2020 as a benchmark shall be reviewed as part of the process set out in Article 11.

Source; Directive 2002/3/EC

ANNEX II

INFORMATION AND ALERT THRESHOLDS

I. Information and alert thresholds for ozone

	Parameter	Threshold
Information threshold	1 hour average	180 µg/m ³
Alert threshold	1 hour average (a)	240 µg/m ³

(a) For the implementation of Article 7, the exceedance of the threshold is to be measured or predicted for three consecutive hours.

II. Minimum details to be supplied to the public when the information or alert threshold is exceeded or exceedance is predicted

Details to be supplied to the public on a sufficiently large scale as soon as possible should include:

1. information on observed exceedance(s):
 - location or area of the exceedance,
 - type of threshold exceeded (information or alert),
 - start time and duration of the exceedance,
 - highest 1-hour and 8-hour mean concentration;
2. forecast for the following afternoon/day(s):
 - geographical area of expected exceedances of information and/or alert threshold,
 - expected change in pollution (improvement, stabilisation or deterioration);
3. information on type of population concerned, possible health effects and recommended conduct:
 - information on population groups at risk,
 - description of likely symptoms,
 - recommended precautions to be taken by the population concerned,
 - where to find further information;
4. information on preventive action to reduce pollution and/or exposure to it:
 - indication of main source sectors; recommendations for action to reduce emissions.

Source; Directive 2002/3/EC

Figure 1.1 UK zones and agglomerations for 2006
(UK agglomerations zones in red text, non-agglomeration zones in black text)

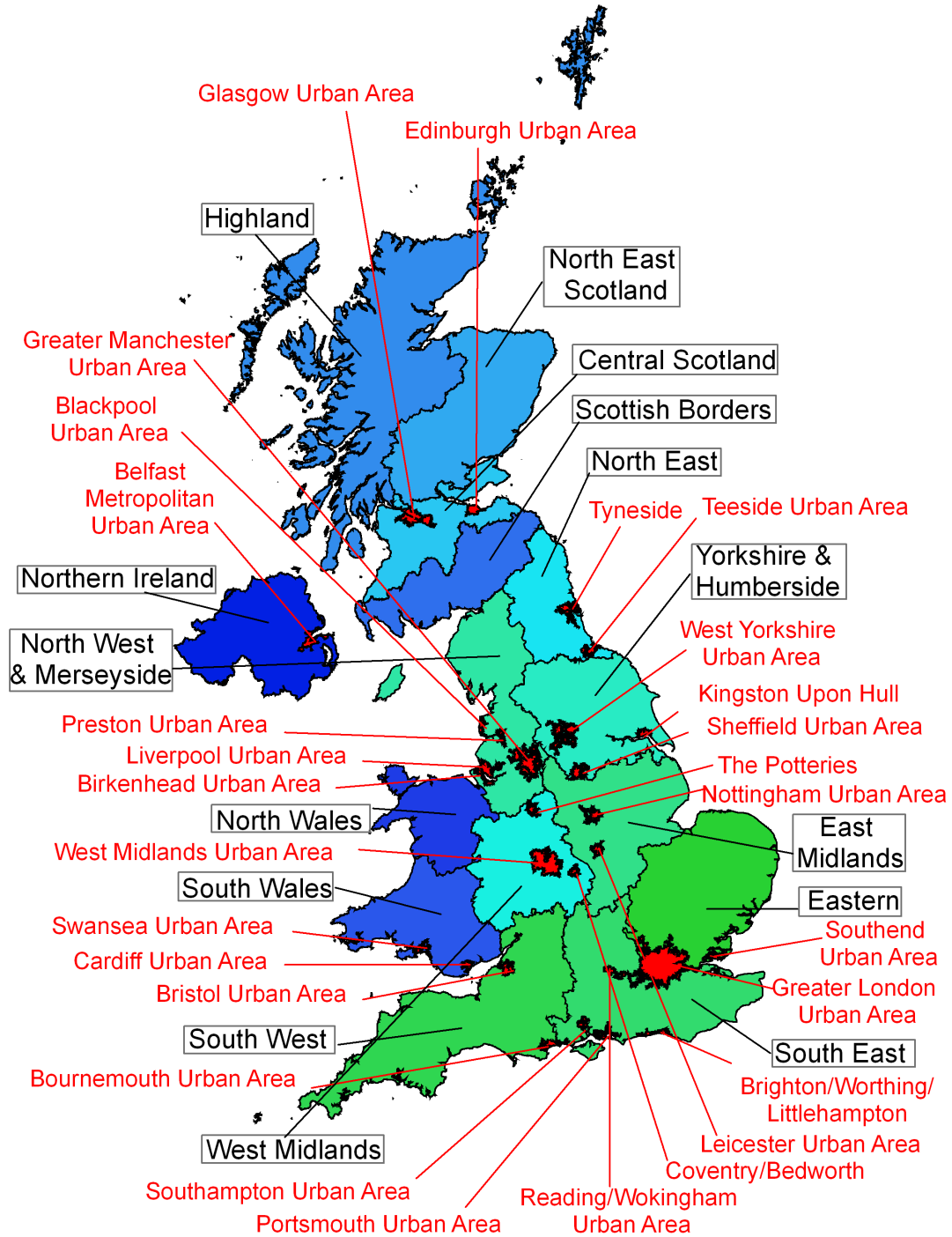


Table 1.1 Zones for AQDD3 reporting

Zone	Zone code	Ag or nonag*	Area (km ²)	Population
Greater London Urban Area	UK0001	ag	1628	8278251
West Midlands Urban Area	UK0002	ag	594	2284093
Greater Manchester Urban Area	UK0003	ag	557	2244931
West Yorkshire Urban Area	UK0004	ag	363	1499465
Tyneside	UK0005	ag	217	879996
Liverpool Urban Area	UK0006	ag	184	816216
Sheffield Urban Area	UK0007	ag	165	640720
Nottingham Urban Area	UK0008	ag	169	666358
Bristol Urban Area	UK0009	ag	142	551066
Brighton/Worthing/Littlehampton	UK0010	ag	97	461181
Leicester Urban Area	UK0011	ag	102	441213
Portsmouth Urban Area	UK0012	ag	91	442252
Teesside Urban Area	UK0013	ag	111	365323
The Potteries	UK0014	ag	91	362403
Bournemouth Urban Area	UK0015	ag	113	383713
Reading/Wokingham Urban Area	UK0016	ag	97	369804
Coventry/Bedworth	UK0017	ag	76	336452
Kingston upon Hull	UK0018	ag	80	301416
Southampton Urban Area	UK0019	ag	77	304400
Birkenhead Urban Area	UK0020	ag	88	319675
Southend Urban Area	UK0021	ag	64	269415
Blackpool Urban Area	UK0022	ag	63	261088
Preston Urban Area	UK0023	ag	58	264601
Glasgow Urban Area	UK0024	ag	366	1168270
Edinburgh Urban Area	UK0025	ag	117	452194
Cardiff Urban Area	UK0026	ag	72	327706
Swansea Urban Area	UK0027	ag	84	270506
Belfast Urban Area	UK0028	ag	193	580276
Eastern	UK0029	nonag	19113	4850132
South West	UK0030	nonag	23506	3980991
South East	UK0031	nonag	18645	6016677
East Midlands	UK0032	nonag	15491	3084598
North West & Merseyside	UK0033	nonag	13149	2826622
Yorkshire & Humberside	UK0034	nonag	14787	2514947
West Midlands	UK0035	nonag	12192	2271650
North East	UK0036	nonag	8282	1269803
Central Scotland	UK0037	nonag	9305	1813314
North East Scotland	UK0038	nonag	18587	1001499
Highland	UK0039	nonag	38269	380062
Scottish Borders	UK0040	nonag	11145	254690
South Wales	UK0041	nonag	12221	1578773
North Wales	UK0042	nonag	8368	720022
Northern Ireland	UK0043	nonag	13579	1104991
Total			242698	59211755

* ag = agglomeration zone, nonag = non-agglomeration zone

1.4 MONITORING SITES

The monitoring stations operating during 2006 in the UK and Gibraltar for the purpose of AQDD3 are listed in Table A1.1 and A1.2 in Appendix 1. This information is included in Form 3 of the questionnaire. Not all sites had sufficient data capture during 2006 for data to be reported in the questionnaire. The data quality objective (DQO) for AQDD measurements is 90% data capture. We have included all measurements with at least 75% data capture in the UK modelling analysis in order to ensure that we can make maximum use of data from the monitoring sites operational during 2006 for reporting purposes. Table A1.3 in Appendix 1 lists the data capture rates for all monitoring stations used in the calibration of models for reporting under AQDD1-3.

Measurement data from monitoring stations not in the UK's Automatic Urban and Rural Network have been used as an independent check on the performance of model outputs. These verification data have been sourced from AEA Energy & Environment's Calibration Club customers and ad-hoc monitoring campaigns. These data are ratified to the same standard as data from the UK national networks and are widely regarded as high quality and reliable. Monitoring stations used in this verification process are presented in Table A2.1 of Appendix 2.

2 Mapping Methods

This section of the report presents the methods used to map ozone throughout the UK. Following recommendations made by a study comparing the relative performance of the available techniques for modelling ozone within the UK⁷, an empirical mapping approach has been used for predicting ozone concentrations in 2006.

The empirical approaches draw upon measurements from the 92 monitoring stations in the AURN to produce functions describing ground-level ozone based upon wind velocity, topography and local emissions of NO_x. These functions are capable of predicting ozone levels at a resolution of 1 x 1 km² and the methods are briefly described in the following sections; full details can be sourced from the cited references. The methods used here are based upon those presented by Coyle et al⁸, NEGTA⁹ and PORG¹⁰.

2.1 MODELLING THE NUMBER OF DAYS EXCEEDING 120 µg m⁻³ METRIC

2.1.1 Days greater than 120 µg m⁻³ methodology

At rural locations in the UK exceedences of 120 µg m⁻³ as a maximum daily 8-hour mean are broadly consistent over wide spatial scales. As a result, measured exceedences from rural monitoring stations have been interpolated throughout the whole UK to represent the likely exceedences of this metric in the absence of NO_x titration effect arising from emissions of NO_x from combustion sources.

The resultant interpolated maps, however, will overestimate exceedences in urban areas, where nitric oxide emissions from combustion sources deplete ozone concentrations. This effect has been accounted for by subtracting an empirically derived urban ozone decrement expressed as a percentage. The percentage decrement is defined as follows:

$$\% \text{ decrement} = 100 * ((\text{measured concentrations} - \text{rural interpolated concentration}) / \text{rural interpolated concentration})$$

The derivation of a coefficient relating the percentage decrement to the modelled local NO_x concentration¹¹ is shown in Figure 2.1 and Figure 2.2.

⁷ T Bush and J Targa, 2005. Ozone Mapping Techniques for the 3rd Daughter Directive; OSRM vs Empirical modelling Comparison Report. A report to The Department for Environment, Food and Rural Affairs, Welsh Assembly Government, The Scottish Executive and the Department of the Environment for Northern Ireland. AEA Technology plc, Netcen, Harwell. Report AEAT/ENV/R/2053

⁸ Coyle M, Smith R, Stedman J, Weston K and Fowler D, 2002. Quantifying the spatial distribution of surface ozone concentration in the UK. Atmospheric Environment, 36 (2002) 1013-1024.

⁹ NEGTA 2001, Transboundary Air Pollution: Acidification, Eutrophication and Ground-level ozone in the UK. Prepared by the National Expert Group on Transboundary Air Pollution (NEGTA) on behalf of the Department for Environment, Food and Rural Affairs, the Scottish Executive, Welsh Assembly Government and the Department of the Environment in Northern Ireland. ISBN 1 870393 61 9.

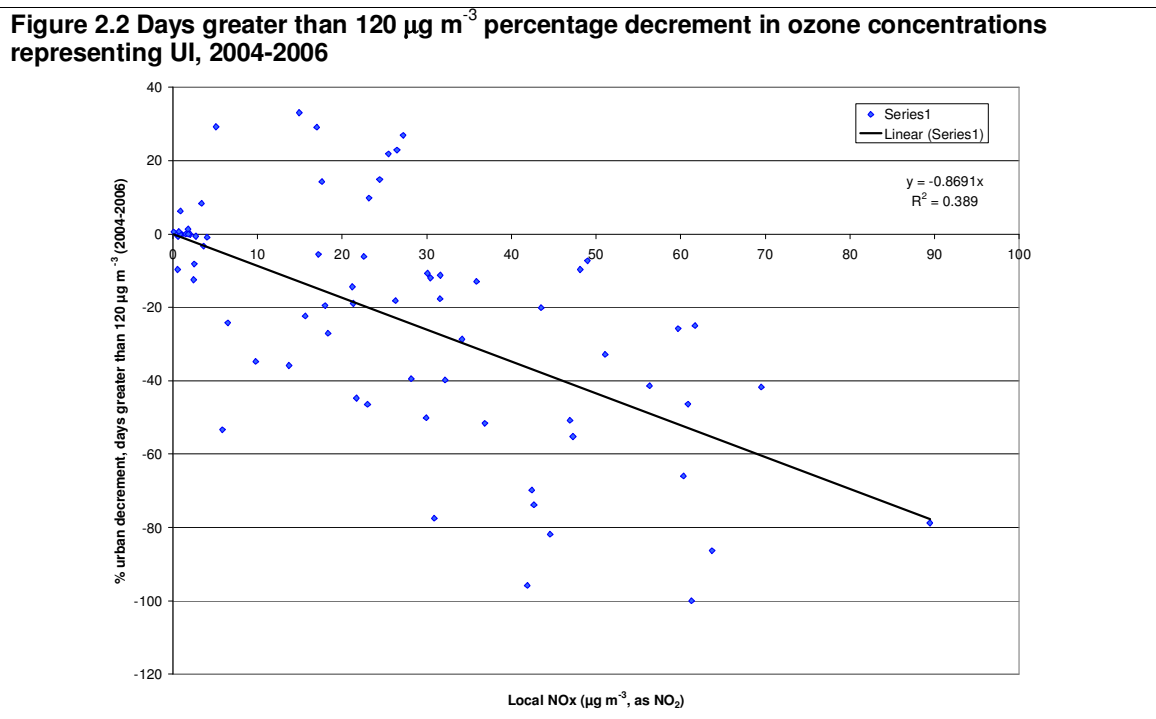
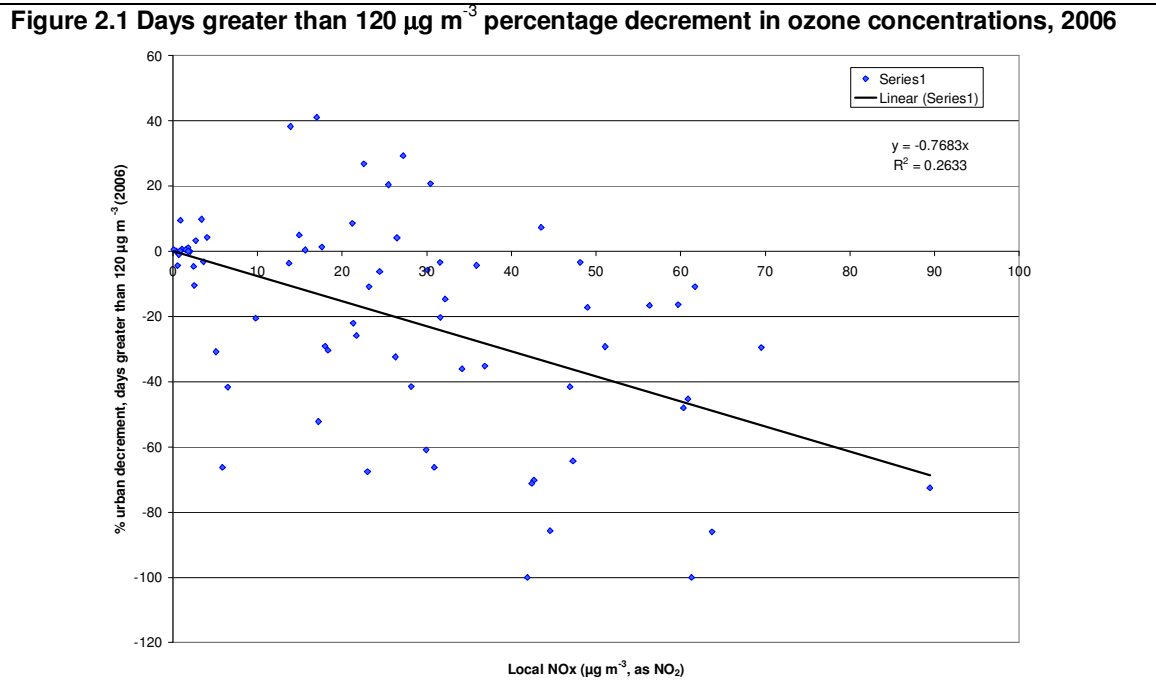
¹⁰ PORG (UK Photochemical Oxidants Review Group), 1998. Ozone in the UK. 4th report of the UK Photochemical Oxidants Review Group, 1st Edition. The Department of the Environment Transport and the Regions.

¹¹ Kent et al (2008). UK air quality modelling for annual reporting 2006 on ambient air quality assessment under Council Directives 96/62/EC, 1999/30/EC and 2000/69/EC. Report to the Department for Environment, Food and Rural Affairs, the Scottish Executive, Welsh Assembly Government and the Department of the Environment in Northern Ireland. AEA Energy & Environment report. AEAT/ENV/R/2502 Issue 1.

This local NOx component is calculated as follows:

$$\text{Local NOx} = \text{modelled background NOx concentration} - \text{modelled rural NOx concentration}$$

Thus the local NOx concentration is the sum of contributions from local point and area NOx emissions calculated using an air dispersion model. Figure 2.1 shows the decrement plot for days greater than $120 \mu\text{g m}^{-3}$ in $2006 \mu\text{g m}^{-3}$ (the LTO for human health metric) and Figure 2.2 shows the decrement plot for days greater than $120 \mu\text{g m}^{-3}$ between 2004 and 2006 (the TV for human health metric).



The calculated decrement is then used to correct the interpolated rural days above $120 \mu\text{g m}^{-3}$ maps:

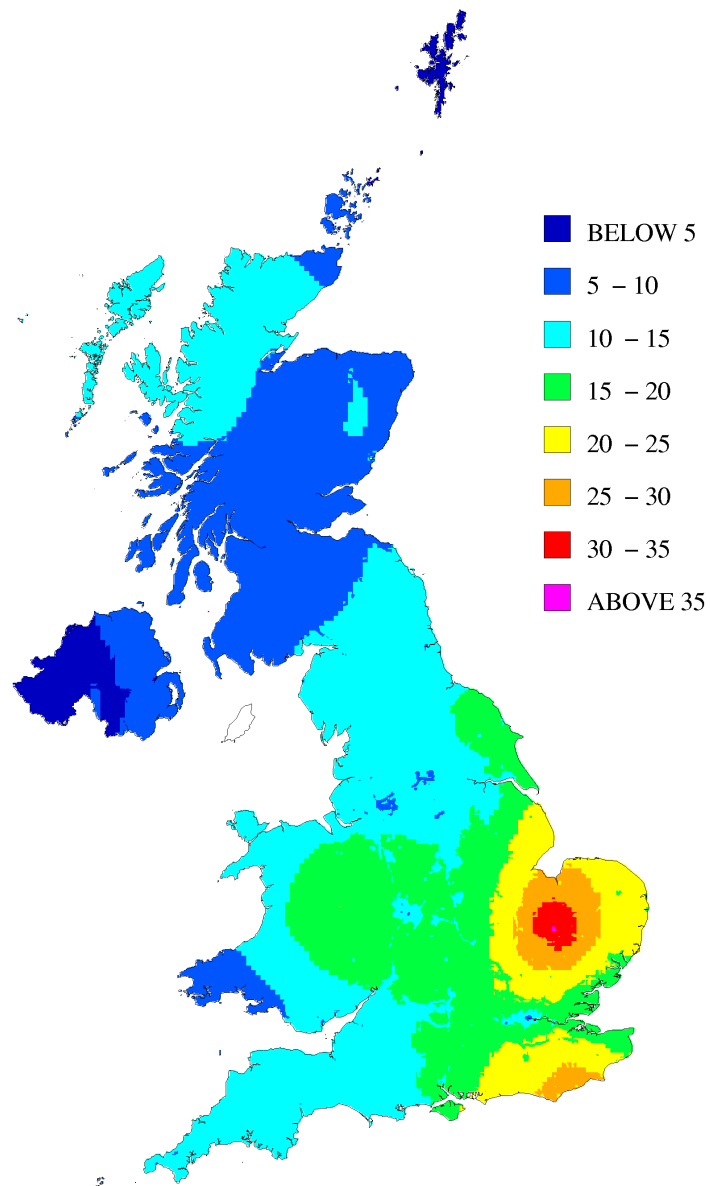
$$\text{Corrected days above } 120 \mu\text{g m}^{-3} \text{ map} = \text{interpolated rural map} + \text{decrement}$$

The decrement is a negative value and so reduces the concentration presented in the interpolated rural map to account for titration of ozone due to NO_x concentrations. Where the product of the expression above results in a predicted number of days exceeding less than 1, the predicted value is rounded to the nearest integer.

Maps of modelled number of days with maximum daily 8-hour mean zone concentrations greater than $120 \mu\text{g m}^{-3}$ for comparison with the Long Term Objective (2006) and Target Value (averaged 2004 to 2006) are presented in Figures 2.3 and 2.4 respectively.

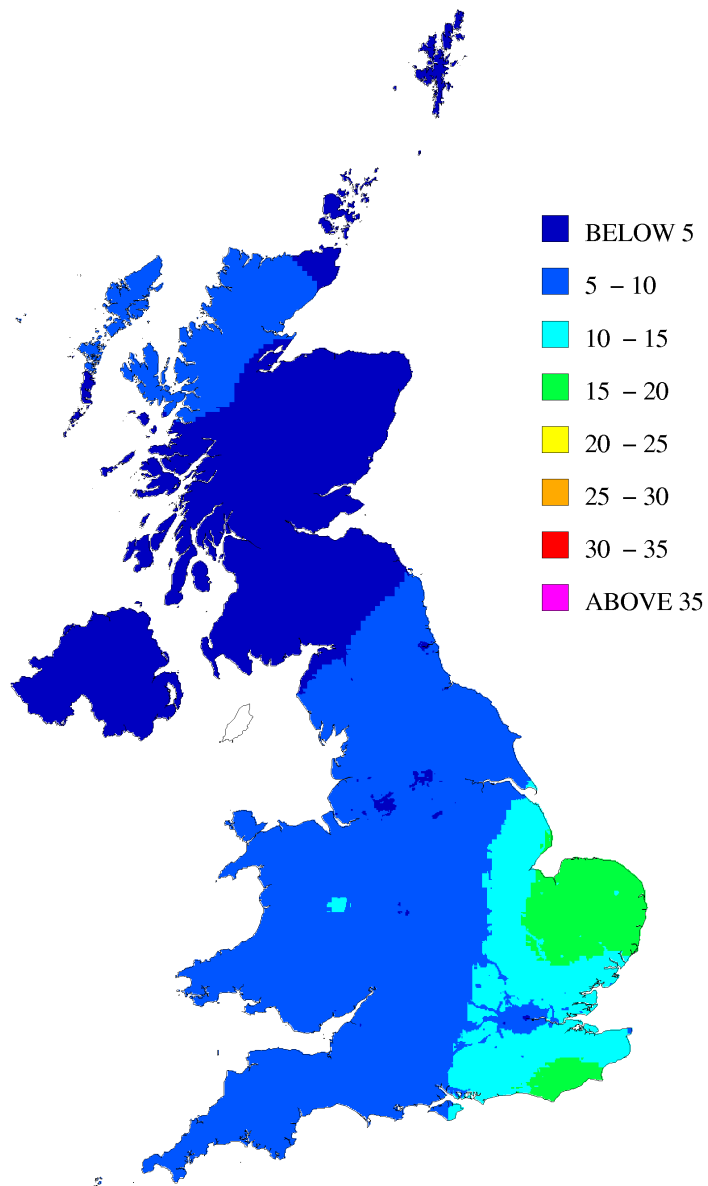
Figures 2.1 and 2.2 show that the relationship between the percentage urban decrement and local NO_x concentration. For some monitoring stations the decrement is positive, indicating that the measured number of days exceeding $120 \mu\text{g m}^{-3}$ is higher than the corresponding estimated rural value i.e. that the urban influence for these sites is not being properly represented in the model. The cluster of low values close to the origin of these plots largely consists of the rural and remote sites at which there will be little difference between the rural estimated number of days exceeding $120 \mu\text{g m}^{-3}$ and the measured value. This helps to anchor the relationship to the origin. Percentage urban increments of -100% indicate that there were no measured exceedences of $120 \mu\text{g m}^{-3}$ that monitoring site.

Figure 2.3 Estimated number of days above $120 \mu\text{g m}^{-3}$, 2006



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Figure 2.4 Estimated average number of days above $120 \mu\text{g m}^{-3}$, 2004 to 2006



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2.1.2 Verification of mapped number of days > 120 $\mu\text{g m}^{-3}$ values

Figures 2.5 and 2.6 show comparisons of modelled and measured number of days with maximum daily 8-hour mean ozone concentrations greater than $120 \mu\text{g m}^{-3}$ in 2006 and averaged 2004-6 at background locations. Both the national network sites used to calibrate the models and the verification sites are shown. Lines representing $y = x - 50\%$ and $y = x + 50\%$ are also shown (this is the AQDD3 data quality objective for modelled ozone concentrations).

Figure 2.5 Verification of background number of days > 120 $\mu\text{g m}^{-3}$ model 2006

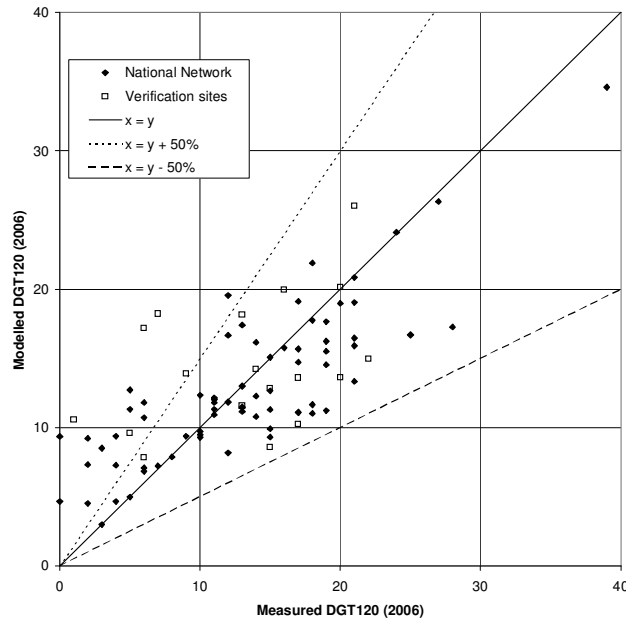
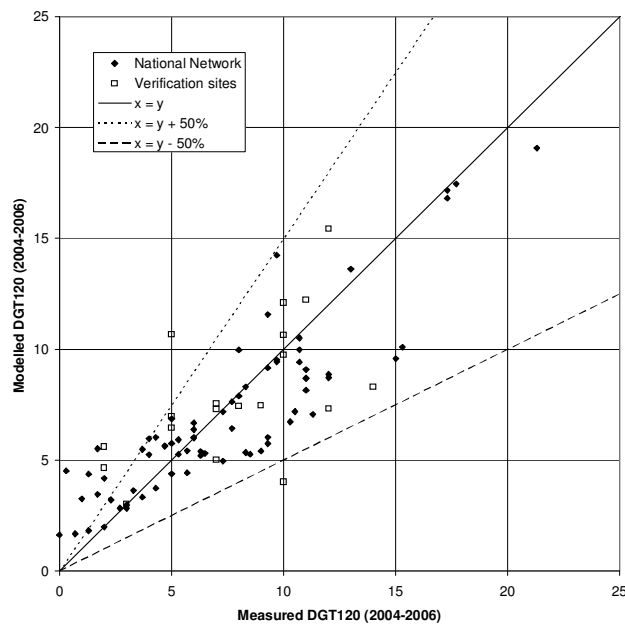


Figure 2.6 Verification of background number of days > 120 $\mu\text{g m}^{-3}$ model 2004 – 2006



Figures 2.5 and 2.6 illustrate that in general, the models overestimate the number of days greater than $120 \mu\text{g m}^{-3}$ for 2006 and 2004-2006, although for the period 2004-2006 there was a single site (Heathrow LHR2) where the model estimate was lower than the number of days exceeding $120 \mu\text{g m}^{-3}$ measured. Figure 2.6 shows better agreement for the period 2004-2006 with the corresponding measured results although there is a slight over prediction at the lower end of the scale.

Summary statistics for the comparison of modelled and measured ozone concentrations are listed in Table 2.1. These data show that on average there is good agreement between the modelled and measured data, although there is some degree of scatter in the model predictions.

Table 2.1 Summary statistics for comparison between modelled and measured number of days exceeding $120 \mu\text{g m}^{-3}$ as a maximum daily 8-hour mean

		Mean of measurements (days)	Mean of model estimates (days)	r^2	% outside data quality objectives	No. sites
National Network	2006	13.1	12.8	0.68	6	72
Verification Sites	2006	13.2	14.5	0.17	28	18
National Network	2004-6	7.3	7.0	0.79	3	72
Verification Sites	2004-6	7.8	8.0	0.33	21	19

2.1.3 Detailed comparison of model results with Target Values and Long-term Objectives

The modelling results, in terms of a comparison of modelled concentrations with the Target Value and Long-term Objective, by zone, are summarised in Table 2.2. These data have also been presented in Form 19g of the questionnaire. Method B in this table refers to the modelling method described in this report.

Estimates of area and population exposed have been derived from the background maps only.

Table 2.2 Tabular results of and methods used for supplementary assessment (1999/30/EC Article 7(3) and Annex VIII(II), 2000/69/EC Article 5(3) and Annex VI(II) and 2002/3/EC Article 9(1) and Annex VII(II))

Zone	Zone code	Above TV for health				Above LTO for health			
		Area		Population exposed		Area		Population exposed	
		km ²	Method	Number	Method	km ²	Method	Number	Method
Greater London Urban Area	UK0001	0	B	0	B	1628	B	7781081	B
West Midlands Urban Area	UK0002	0	B	0	B	594	B	2083891	B
Greater Manchester Urban Area	UK0003	0	B	0	B	557	B	1846479	B
West Yorkshire Urban Area	UK0004	0	B	0	B	363	B	1150737	B
Tyneside	UK0005	0	B	0	B	217	B	714326	B
Liverpool Urban Area	UK0006	0	B	0	B	184	B	696998	B
Sheffield Urban Area	UK0007	0	B	0	B	165	B	521984	B
Nottingham Urban Area	UK0008	0	B	0	B	169	B	558935	B
Bristol Urban Area	UK0009	0	B	0	B	142	B	488798	B
Brighton/Worthing/Littlehampton	UK0010	0	B	0	B	97	B	386373	B
Leicester Urban Area	UK0011	0	B	0	B	102	B	374314	B
Portsmouth Urban Area	UK0012	0	B	0	B	91	B	354964	B
Teesside Urban Area	UK0013	0	B	0	B	111	B	298093	B
The Potteries	UK0014	0	B	0	B	91	B	266188	B
Bournemouth Urban Area	UK0015	0	B	0	B	113	B	338103	B
Reading/Wokingham Urban Area	UK0016	0	B	0	B	97	B	305786	B
Coventry/Bedworth	UK0017	0	B	0	B	76	B	277475	B
Kingston upon Hull	UK0018	0	B	0	B	80	B	260201	B
Southampton Urban Area	UK0019	0	B	0	B	77	B	262379	B
Birkenhead Urban Area	UK0020	0	B	0	B	88	B	265019	B
Southend Urban Area	UK0021	0	B	0	B	64	B	217874	B
Blackpool Urban Area	UK0022	0	B	0	B	63	B	212909	B
Preston Urban Area	UK0023	0	B	0	B	58	B	180687	B
Glasgow Urban Area	UK0024	0	B	0	B	366	B	1083323	B
Edinburgh Urban Area	UK0025	0	B	0	B	117	B	428762	B
Cardiff Urban Area	UK0026	0	B	0	B	72	B	261383	B
Swansea Urban Area	UK0027	0	B	0	B	84	B	190040	B
Belfast Urban Area	UK0028	0	B	0	B	193	B	513811	B
Eastern	UK0029	0	B	0	B	19113	B	4903503	B
South West	UK0030	0	B	0	B	23506	B	4035009	B
South East	UK0031	0	B	0	B	18645	B	6157547	B
East Midlands	UK0032	0	B	0	B	15491	B	3261288	B
North West & Merseyside	UK0033	0	B	0	B	13149	B	3469390	B
Yorkshire & Humberside	UK0034	0	B	0	B	14787	B	3003552	B
West Midlands	UK0035	0	B	0	B	12192	B	2624016	B
North East	UK0036	0	B	0	B	8282	B	1443387	B
Central Scotland	UK0037	0	B	0	B	9314	B	1875411	B
North East Scotland	UK0038	0	B	0	B	18595	B	972129	B
Highland	UK0039	0	B	0	B	38404	B	334226	B
Scottish Borders	UK0040	0	B	0	B	11145	B	250175	B
South Wales	UK0041	0	B	0	B	12221	B	1696999	B
North Wales	UK0042	0	B	0	B	8368	B	702304	B
Northern Ireland	UK0043	0	B	0	B	13941	B	1147840	B

2.2 MODELLING THE AOT40 VEGETATION METRIC

2.2.1 AOT40 methodology

Annex I of the Directive describes AOT40 (expressed in $\mu\text{g m}^{-3}\cdot\text{hours}$) as the sum of the difference between hourly concentrations greater than $80 \mu\text{g m}^{-3}$ (= 40 parts per billion) and $80 \mu\text{g m}^{-3}$ over a given period using only the 1 hour values measured between 8:00 and 20:00 Central European Time each day May to July.

The AOT40 vegetation metrics for 2006 and the averaged metric 2002-2006 were calculated from measured data at rural monitoring stations in the AURN during the “well-mixed” period of the day (hours 1200 UTC to 1800 UTC). These data were interpolated to produce a rural well-mixed map at 1 x1 km² resolution. Topographic effects are important for some ozone metrics, such as the AOT40 because of the disconnection of a shallow boundary layer from air aloft at times other than during the middle of the day at lowland locations. Surface ozone concentrations are lower at times other than during the middle of the day in these locations due to a combination of dry deposition and titration with NO emissions. This effect is much less marked at higher altitudes and at coastal locations, where wind is generally stronger and a shallow boundary layer does not form. As a result of the influence of altitude on this metric, it is necessary to calculate the metric between these well-mixed hours to allow an appropriate correction to the interpolated well-mixed rural map. This correction accounts for the diurnal variation in ozone, thereby converting the mapped well-mixed AOT40 to a daily AOT40 for comparison against the Directive. The correction uses a variable ΔO_3 , where ΔO_3 describes the difference between the AOT40 “well-mixed” and that between 0800 UTC and 2000 UTC during 2006¹². For the purposes of this study the components of ΔO_3 are described as follows and were derived from measured values in 2006 for the single year metric and years 2002-2006 for the multi-year metric:

$$\Delta\text{O}_3_{2006} = 0.0003.\text{altitude} + 1.385$$

$$\Delta\text{O}_3_{2002-6} = 0.0003.\text{altitude} + 1.344$$

An urban decrement term was subsequently defined for monitoring stations in the AURN and the rural map to correct for the depletion of ozone in areas close to sources of NO. As for the days above $120 \mu\text{g m}^{-3}$ metric, the decrement is closely related to annual mean NOx concentration, and has been defined in a similar fashion, using a percentage decrement in ozone concentrations associated with NOx concentrations. The relationships between the decrement and modelled NOx concentrations for 2006 and 2002-2006 averaged metrics are presented in Figures 2.7 and 2.8 below.

Using the same methodology discussed in Section 2.1 for the days greater than $120 \mu\text{g m}^{-3}$ maps, the decrement was then used to correct the final AOT40 maps:

$$\text{Corrected AOT40 map} = \text{interpolated rural map} + \text{decrement}$$

Maps of modelled AOT40 for comparison with the Long-term Objective (2006) and Target Value (averaged 2002 to 2006) are presented in Figures 2.9 and 2.10.

¹² Coyle M, Smith R, Stedman J, Weston K and Fowler D, 2002. Quantifying the spatial distribution of surface ozone concentration in the UK. *Atmospheric Environment*, 36 (2002) 1013-1024.

Figure 2.7 AOT40 percentage decrement in ozone concentrations, 2006

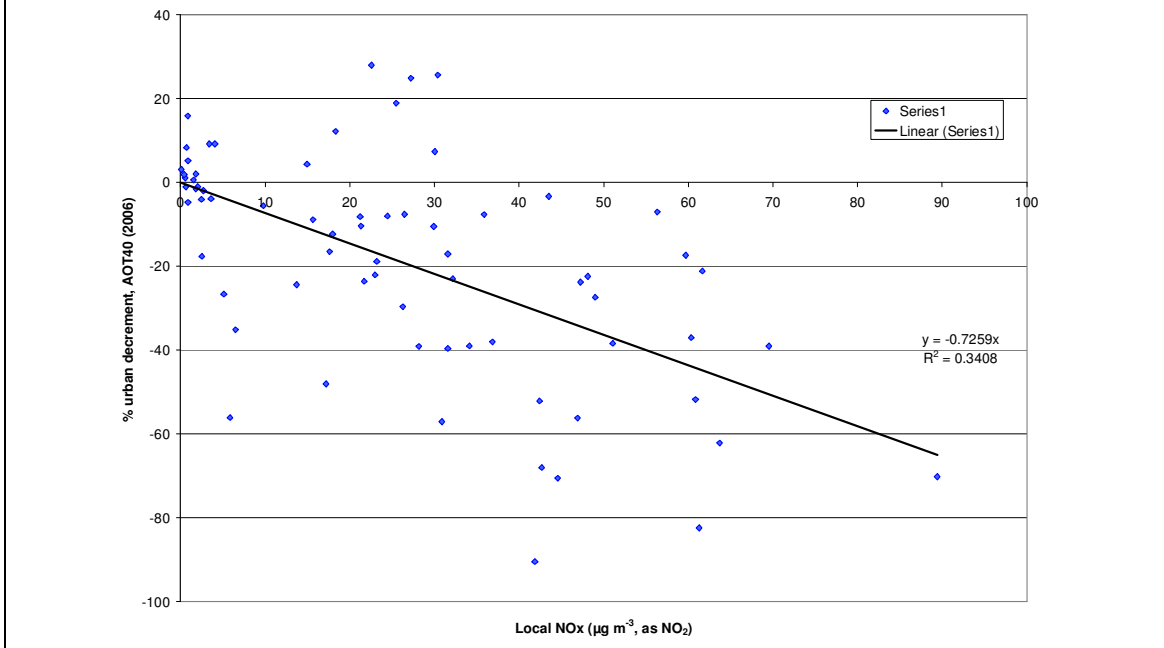


Figure 2.8 AOT40 percentage decrement in ozone concentrations, 2004-2006

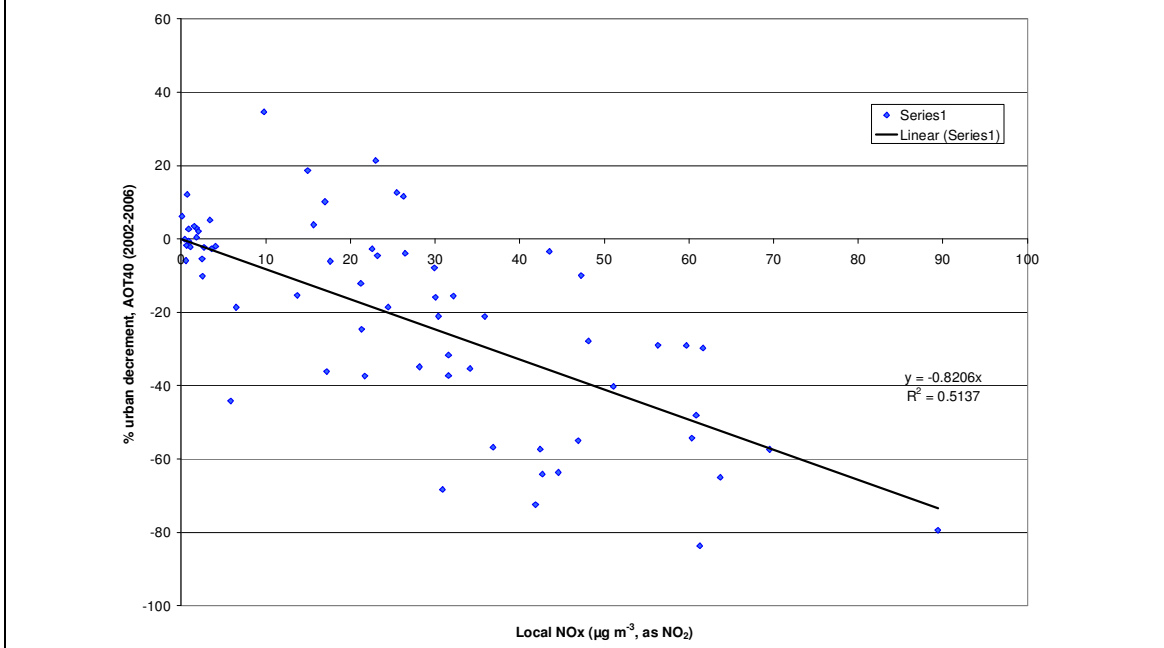
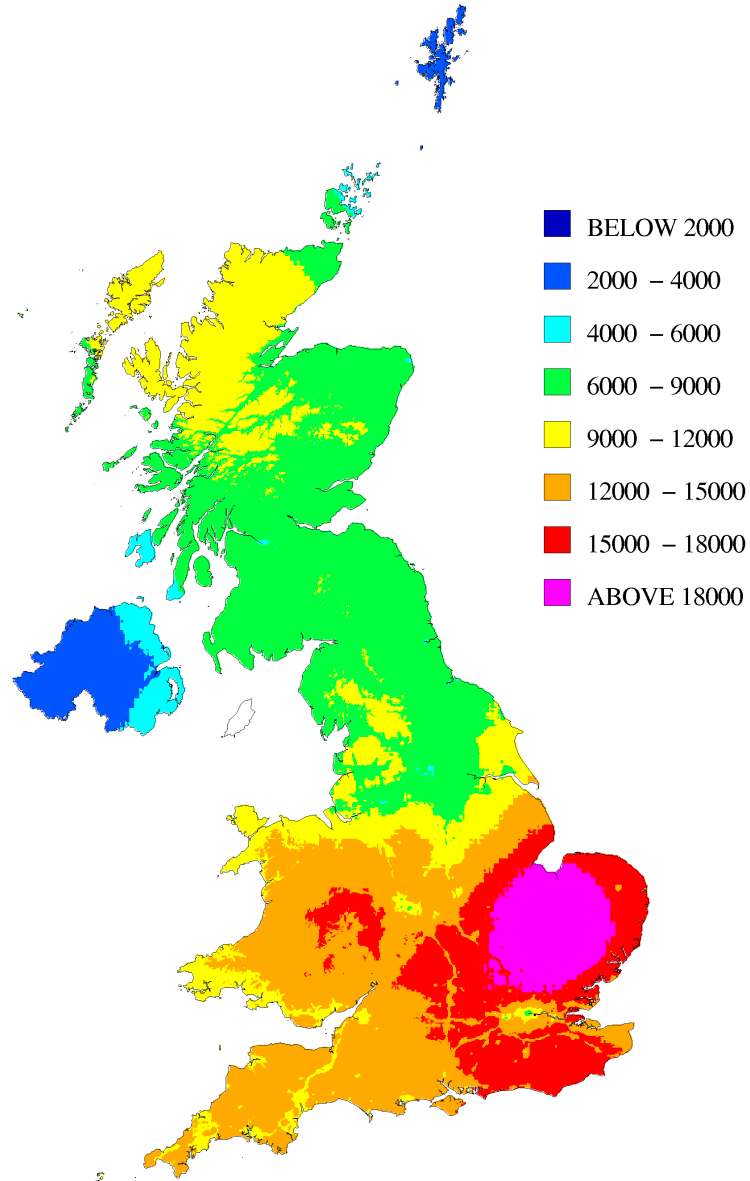
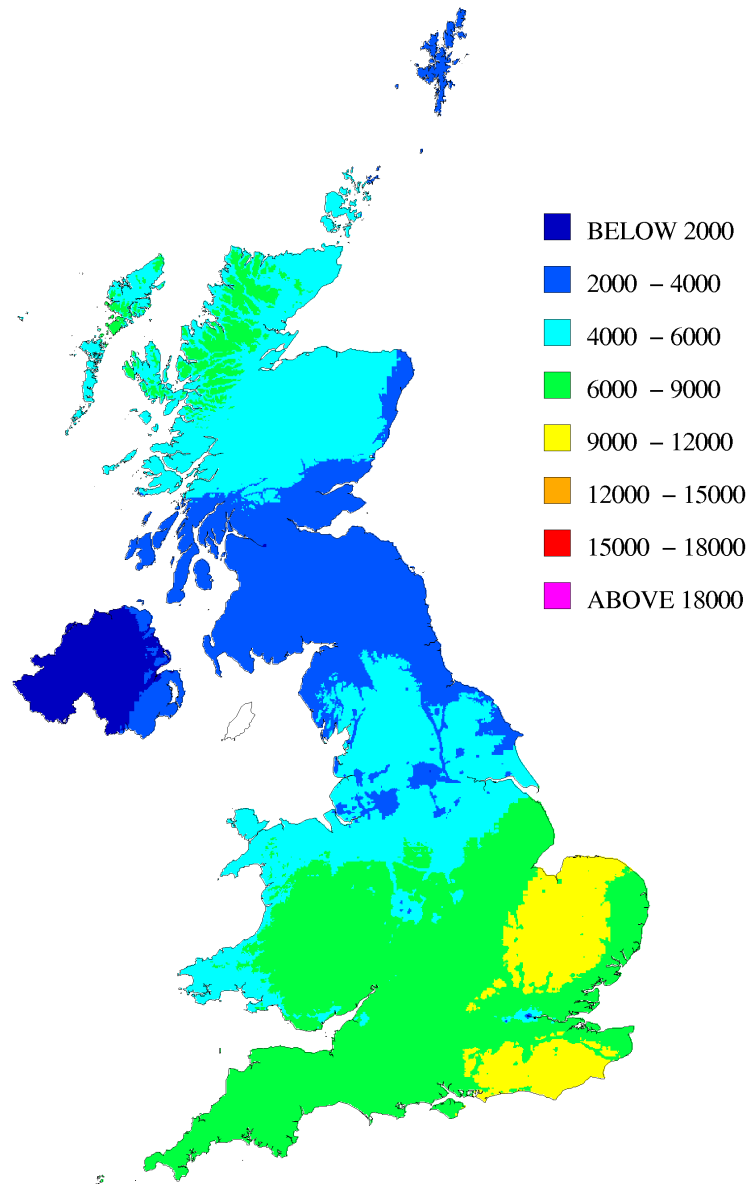


Figure 2.9 Estimated AOT40 vegetation metric, 2006 ($\mu\text{g m}^{-3} \cdot \text{hours}$)



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Figure 2.10 Estimated AOT40 vegetation metric, averaged 2002 – 2006 ($\mu\text{g m}^{-3} \cdot \text{hours}$)



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2.2.2 Verification of mapped AOT40 values

Figures 2.11 and 2.12 show comparisons of modelled and measured AOT40 metrics in 2006 and averaged 2002-6 at background locations. Both the national network sites used to calibrate the models and the verification sites are shown. Lines representing $y = x - 50\%$ and $y = x + 50\%$ are also shown (this is the AQDD3 data quality objective for modelled ozone concentrations).

Figure 2.11 Verification of background AOT40 vegetation model, 2006

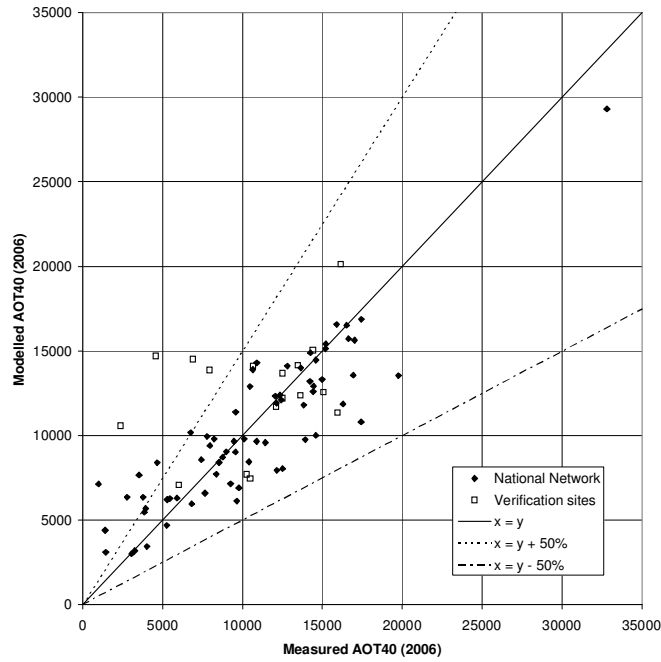
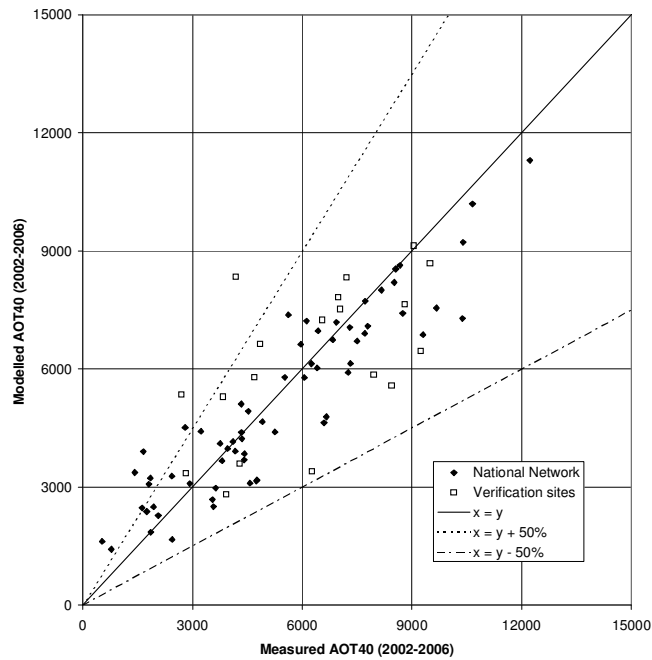


Figure 2.12 Verification of background AOT40 vegetation model, 2002-2006



Both Figures 2.11 and 2.12 show some over prediction by the models in the lower ranges. This is more prevalent in the AOT40 for 2006 than the 2002-2006 averaged AOT40 metric due to the averaging nature of the multi-year metric. These sites are generally urban sites for which model performance is not optimum.

Summary statistics for the comparison between modelled and measured ozone concentrations are listed in Table 2.3. As for the modelled days above 120 $\mu\text{g m}^{-3}$ metric, Table 2.3 indicates that on average the modelled and measured data compare well although the scatter in the relationship is large.

Table 2.3 Summary statistics for comparison between modelled and measured AOT40 vegetation metric

		Mean of measurements ($\mu\text{g.hours}$)	Mean of model estimates ($\mu\text{g.hours}$)	r^2	% outside data quality objectives	No. sites
National Network	2006	10497	10252	0.80	4	69
Verification Sites	2006	10887	12528	0.11	24	17
National Network	2002-6	5346	5137	0.86	3	65
Verification Sites	2002-6	6232	6252	0.35	11	19

2.2.3 Detailed comparison of modelling results with limit values

The modelling results, in terms of a comparison of modelled concentrations with the Long-term Objective and the Target Value by zone, are summarised in Table 2.4. These data have also been presented in form 19g of the questionnaire. Method B in this table refers to the modelling method described in this report.

Estimates of area and population exposed have been derived from the background maps only.

Table 2.4 Tabular results of and methods used for supplementary assessment (1999/30/EC Article 7(3) and Annex VIII(II), 2000/69/EC Article 5(3) and Annex VI(II) and 2002/3/EC Article 9(1) and Annex VII(II))

Zone	Zone code	Above TV for ecosystems				Above LTO for ecosystems			
		Area		Ecosystem area exposed		Area		Ecosystem area exposed	
		km ²	Method	km ²	Method	km ²	Method	km ²	Method
Greater London Urban Area	UK0001	0	B	n	B	1620	B	n	B
West Midlands Urban Area	UK0002	0	B	n	B	594	B	n	B
Greater Manchester Urban Area	UK0003	0	B	n	B	536	B	n	B
West Yorkshire Urban Area	UK0004	0	B	n	B	316	B	n	B
Tyneside	UK0005	0	B	n	B	202	B	n	B
Liverpool Urban Area	UK0006	0	B	n	B	184	B	n	B
Sheffield Urban Area	UK0007	0	B	n	B	162	B	n	B
Nottingham Urban Area	UK0008	0	B	n	B	169	B	n	B
Bristol Urban Area	UK0009	0	B	n	B	142	B	n	B
Brighton/Worthing/Littlehampton	UK0010	0	B	n	B	97	B	n	B
Leicester Urban Area	UK0011	0	B	n	B	102	B	n	B
Portsmouth Urban Area	UK0012	0	B	n	B	91	B	n	B
Teesside Urban Area	UK0013	0	B	n	B	101	B	n	B
The Potteries	UK0014	0	B	n	B	91	B	n	B
Bournemouth Urban Area	UK0015	0	B	n	B	113	B	n	B
Reading/Wokingham Urban Area	UK0016	0	B	n	B	97	B	n	B
Coventry/Bedworth	UK0017	0	B	n	B	76	B	n	B
Kingston upon Hull	UK0018	0	B	n	B	80	B	n	B
Southampton Urban Area	UK0019	0	B	n	B	77	B	n	B
Birkenhead Urban Area	UK0020	0	B	n	B	88	B	n	B
Southend Urban Area	UK0021	0	B	n	B	64	B	n	B
Blackpool Urban Area	UK0022	0	B	n	B	63	B	n	B
Preston Urban Area	UK0023	0	B	n	B	58	B	n	B
Glasgow Urban Area	UK0024	0	B	n	B	315	B	n	B
Edinburgh Urban Area	UK0025	0	B	n	B	113	B	n	B
Cardiff Urban Area	UK0026	0	B	n	B	72	B	n	B
Swansea Urban Area	UK0027	0	B	n	B	84	B	n	B
Belfast Urban Area	UK0028	0	B	n	B	0	B	n	B
Eastern	UK0029	0	B	0	B	19113	B	5328	B
South West	UK0030	0	B	0	B	23506	B	10109	B
South East	UK0031	0	B	0	B	18645	B	2330	B
East Midlands	UK0032	0	B	0	B	15491	B	3621	B
North West & Merseyside	UK0033	0	B	0	B	13149	B	4827	B
Yorkshire & Humberside	UK0034	0	B	0	B	14772	B	4362	B
West Midlands	UK0035	0	B	0	B	12192	B	3617	B
North East	UK0036	0	B	0	B	8275	B	4472	B
Central Scotland	UK0037	0	B	0	B	9311	B	2495	B
North East Scotland	UK0038	0	B	0	B	18568	B	13068	B
Highland	UK0039	0	B	0	B	35771	B	33579	B
Scottish Borders	UK0040	0	B	0	B	11145	B	9127	B
South Wales	UK0041	0	B	0	B	12221	B	7309	B
North Wales	UK0042	0	B	0	B	8368	B	5858	B
Northern Ireland	UK0043	0	B	0	B	0	B	0	B

3 Exceedence of the Target Value and Long-term Objective

3.1 RESULTS FOR UK IN 2006

Table 3.1 presented in this section is derived from Form 9 of the questionnaire. Exceedence (or otherwise) of the Target Value (TV) and Long-term Objective (LTO) where this exists are indicated by a 'y' for measured exceedences and with an 'm' for modelled exceedences. If both measurements and model estimates show that a threshold has been exceeded then the measurements are regarded as the primary basis for compliance status and 'y' is therefore used. An 'm' in the columns marked >TV, ≤TV; >LTO indicates that modelled concentrations were higher than measured concentrations or on rare occasions that measurements were not available for that zone and modelled values were therefore used. Modelled concentrations may be higher than measured concentrations because the modelling studies provide estimates of concentrations over the entire zone. It is possible that the locations of the monitoring sites do not correspond to the location of the highest concentration in the zone. An 'm' in the columns marked ≤LTO indicates that measurements were not available for that zone and modelled values were therefore used.

The results are summarised in Tables 3.2 and 3.3 in terms of exceedences of Target Values (TV) and Long-term Objectives (LTO).

Table 3.1 - Form 9 List of zones and agglomerations in the UK where levels exceed or do not exceed Target Values or Long-term Objective

Zone	Zone code	Thresholds for health			Thresholds for vegetation		
		>TV	≤TV; >LTO	≤LTO	>TV	≤TV; >LTO	≤LTO
Greater London Urban Area	UK0001		y			y	
West Midlands Urban Area	UK0002		y			y	
Greater Manchester Urban Area	UK0003		y			y	
West Yorkshire Urban Area	UK0004		y			m	
Tyneside	UK0005		y			m	
Liverpool Urban Area	UK0006		y			y	
Sheffield Urban Area	UK0007		y			m	
Nottingham Urban Area	UK0008		y			y	
Bristol Urban Area	UK0009		m			m	
Brighton/Worthing/Littlehampton	UK0010		y			y	
Leicester Urban Area	UK0011		y			y	
Portsmouth Urban Area	UK0012		y			y	
Teesside Urban Area	UK0013		y			y	
The Potteries	UK0014		y			y	
Bournemouth Urban Area	UK0015		y			y	
Reading/Wokingham Urban Area	UK0016		y			y	
Coventry/Bedworth	UK0017		y			y	
Kingston upon Hull	UK0018		y			y	
Southampton Urban Area	UK0019		y			m	
Birkenhead Urban Area	UK0020		y			y	
Southend Urban Area	UK0021		y			y	
Blackpool Urban Area	UK0022		y			y	
Preston Urban Area	UK0023		y			y	
Glasgow Urban Area	UK0024		m			m	
Edinburgh Urban Area	UK0025		y			m	
Cardiff Urban Area	UK0026		y			y	
Swansea Urban Area	UK0027		y			y	
Belfast Urban Area	UK0028		y				y
Eastern	UK0029		y			y	
South West	UK0030		y			y	
South East	UK0031		y			y	
East Midlands	UK0032		y			y	
North West & Merseyside	UK0033		y			y	
Yorkshire & Humberside	UK0034		y			y	
West Midlands	UK0035		y			y	
North East	UK0036		y			y	
Central Scotland	UK0037		y			m	
North East Scotland	UK0038		y			m	
Highland	UK0039		y			y	
Scottish Borders	UK0040		y			y	
South Wales	UK0041		y			y	
North Wales	UK0042		y			y	
Northern Ireland	UK0043		y				y

Table 3.2 - Summary results of air quality assessment relative to the Target Values for ozone for 2010

<i>Target Value</i>	<i>Number of zones exceeding</i>
Max Daily 8-hour mean Target Value	none
AOT40 Target Value	none

Table 3.3 - Summary results of air quality assessment relative to the Long-term Objectives for ozone

<i>Long-term Objective</i>	<i>Number of zones exceeding</i>
Max Daily 8-hour mean Long-term Objective	43 zones (41 measured + 2 modelled)
AOT40 Long-term Objective	41 zones (32 measured + 9 modelled)

3.2 MEASURED EXCEEDENCES IN UK IN 2006

Forms 13a-c of the questionnaire requires reasons associated with the measured exceedences of the LTO, Alert Threshold and Information Threshold to be documented. This information is summarised in Tables 3.4 to 3.6 for monitoring stations in the UK at which exceedences of the LTO, Alert and Information Thresholds were measured. Measured annual statistics for ozone are presented in Form 15 of the questionnaire (see Table 3.7). Forms 14a-b relates to measured exceedence of the TVs of which there are none (see Table 3.2).

The Reason Code 'S10' refers to the 'Transport of air pollution originating from sources outside the Member State'.

Table 3.4 - Form 13a Individual exceedences of ozone thresholds (2002/3/EC, Article 10(2b) and Annex III)

- Form 13a Exceedence of ozone information threshold value									
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Max 1-hour mean ozone concentration (µg/m³) during exceedence period</i>	<i>Reason code(s)</i>	<i>Starting time of the exceedence period</i>	<i>Total number of exceedence hours</i>	<i>1-hour mean NO₂ concentration (µg/m³) during maximum ozone concentration</i>
Aston Hill	UK0042	GB0031R	6	9	184	S10	17	1	
Aston Hill	UK0042	GB0031R	7	3	186	S10	16	2	6.1
Aston Hill	UK0042	GB0031R	7	3	184	S10	19	1	6.5
Aston Hill	UK0042	GB0031R	7	4	194	S10	15	6	0.6
Aston Hill	UK0042	GB0031R	7	18	196	S10	12	7	7.3
Aston Hill	UK0042	GB0031R	7	18	182	S10	21	2	1.7
Aston Hill	UK0042	GB0031R	7	19	220	S10	12	12	2.9
Aston Hill	UK0042	GB0031R	7	20	202	S10	0	2	2.9
Barnsley Gawber	UK0034	GB0681A	7	17	182	S10	17	1	11
Belfast Centre	UK0028	GB0567A	7	19	188	S10	17	1	38
Birmingham Tyburn	UK0002	GB0851A	7	2	182	S10	13	1	
Birmingham Tyburn	UK0002	GB0851A	7	19	186	S10	13	3	21
Blackpool Marton	UK0022	GB0882A	6	10	186	S10	18	2	4
Blackpool Marton	UK0022	GB0882A	7	2	204	S10	11	3	11
Blackpool Marton	UK0022	GB0882A	7	18	240	S10	14	6	15
Blackpool Marton	UK0022	GB0882A	7	19	208	S10	13	5	13
Bottesford	UK0032	GB0032R	7	2	190	S10	17	2	
Bottesford	UK0032	GB0032R	7	17	186	S10	16	2	
Bottesford	UK0032	GB0032R	7	19	188	S10	13	4	
Bottesford	UK0032	GB0032R	7	20	196	S10	16	3	
Bournemouth	UK0015	GB0741A	7	1	208	S10	13	7	10
Bournemouth	UK0015	GB0741A	7	1	188	S10	19	1	13
Bournemouth	UK0015	GB0741A	7	3	188	S10	14	2	11
Bournemouth	UK0015	GB0741A	7	4	188	S10	17	1	13
Bournemouth	UK0015	GB0741A	7	17	204	S10	14	7	11
Bournemouth	UK0015	GB0741A	7	18	232	S10	13	8	8
Bournemouth	UK0015	GB0741A	7	18	232	S10	18	3	11
Brighton Preston Park	UK0010	GB0860A	7	1	202	S10	16	5	19
Brighton Preston Park	UK0010	GB0860A	7	18	202	S10	14	4	11

- Form 13a Exceedence of ozone information threshold value									
<i>Station name</i>	<i>Zone code</i>	<i>Eol station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Max 1-hour mean ozone concentration ($\mu\text{g}/\text{m}^3$) during exceedence period</i>	<i>Reason code(s)</i>	<i>Starting time of the exceedence period</i>	<i>Total number of exceedence hours</i>	<i>1-hour mean NO_2 concentration ($\mu\text{g}/\text{m}^3$) during maximum ozone concentration</i>
Brighton Preston Park	UK0010	GB0860A	7	18	206	S10	20	1	17
Brighton Preston Park	UK0010	GB0860A	7	19	188	S10	15	2	23
Cardiff Centre	UK0026	GB0580A	7	3	182	S10	16	1	13
Cardiff Centre	UK0026	GB0580A	7	4	182	S10	18	1	25
Cardiff Centre	UK0026	GB0580A	7	19	198	S10	15	2	34
Coventry Memorial Park	UK0017	GB0739A	7	2	184	S10	13	2	2
Coventry Memorial Park	UK0017	GB0739A	7	19	198	S10	13	5	11
Coventry Memorial Park	UK0017	GB0739A	7	19	184	S10	21	1	10
Cwmbran	UK0041	GB0744A	7	19	206	S10	14	4	13
Cwmbran	UK0041	GB0744A	7	19	182	S10	20	1	10
Derry	UK0043	GB0673A	7	19	196	S10	17	4	10
Exeter Roadside	UK0030	GB0640A	7	1	190	S10	17	3	17
Exeter Roadside	UK0030	GB0640A	7	1	190	S10	18	2	17
Exeter Roadside	UK0030	GB0640A	7	1	190	S10	19	1	17
Exeter Roadside	UK0030	GB0640A	7	2	188	S10	19	1	19
Exeter Roadside	UK0030	GB0640A	7	2	182	S10	21	1	36
Exeter Roadside	UK0030	GB0640A	7	17	188	S10	20	1	31
Exeter Roadside	UK0030	GB0640A	7	18	210	S10	16	6	53
Harwell	UK0031	GB0036R	7	18	212	S10	16	4	13.4
Harwell	UK0031	GB0036R	7	19	206	S10	14	4	
Leamington Spa	UK0035	GB0643A	6	9	186	S10	18	1	0
Leamington Spa	UK0035	GB0643A	7	2	190	S10	12	5	6
Leamington Spa	UK0035	GB0643A	7	17	182	S10	18	1	4
Leamington Spa	UK0035	GB0643A	7	18	190	S10	18	2	10
Leamington Spa	UK0035	GB0643A	7	19	228	S10	12	8	13
Leicester Centre	UK0011	GB0597A	7	2	184	S10	14	1	4
Leominster	UK0035	GB0861A	7	3	184	S10	15	2	13
Leominster	UK0035	GB0861A	7	4	192	S10	15	5	10
Liverpool Speke	UK0006	GB0777A	7	19	188	S10	12	7	
London Bexley	UK0001	GB0608A	7	19	212	S10	16	2	50

- Form 13a Exceedence of ozone information threshold value									
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Max 1-hour mean ozone concentration (µg/m³) during exceedence period</i>	<i>Reason code(s)</i>	<i>Starting time of the exceedence period</i>	<i>Total number of exceedence hours</i>	<i>1-hour mean NO₂ concentration (µg/m³) during maximum ozone concentration</i>
London Brent	UK0001	GB0616A	7	1	222	S10	15	6	13
London Brent	UK0001	GB0616A	7	17	208	S10	15	4	23
London Brent	UK0001	GB0616A	7	18	208	S10	14	6	19
London Brent	UK0001	GB0616A	7	19	218	S10	13	9	50
London Brent	UK0001	GB0616A	7	26	204	S10	14	5	11
London Eltham	UK0001	GB0586A	7	26	194	S10	13	5	21
London Harlington	UK0001	GB0837A	7	17	196	S10	16	2	38
London Harlington	UK0001	GB0837A	7	18	182	S10	14	1	42
London Harlington	UK0001	GB0837A	7	19	206	S10	15	3	65
London Harlington	UK0001	GB0837A	7	26	182	S10	14	1	15
London Hillingdon	UK0001	GB0642A	7	19	182	S10	16	1	46
London N. Kensington	UK0001	GB0620A	7	1	194	S10	18	2	53
London N. Kensington	UK0001	GB0620A	7	17	188	S10	16	1	40
London N. Kensington	UK0001	GB0620A	7	18	202	S10	18	1	34
London N. Kensington	UK0001	GB0620A	7	19	186	S10	18	4	31
London N. Kensington	UK0001	GB0620A	7	26	204	S10	13	4	17
London Teddington	UK0001	GB0644A	7	1	194	S10	15	4	8.6
London Teddington	UK0001	GB0644A	7	17	182	S10	14	1	13.8
London Teddington	UK0001	GB0644A	7	18	188	S10	15	2	24.8
London Teddington	UK0001	GB0644A	7	19	206	S10	14	8	36.7
London Teddington	UK0001	GB0644A	7	26	198	S10	13	5	4.4
London Wandsworth	UK0001	GB0622A	7	26	182	S10	15	1	36
London Westminster	UK0001	GB0743A	7	1	192	S10	18	1	53
London Westminster	UK0001	GB0743A	7	26	186	S10	15	1	34
Lullington Heath	UK0031	GB0038R	6	9	188	S10	19	1	19.9
Lullington Heath	UK0031	GB0038R	6	12	182	S10	18	1	11.1
Lullington Heath	UK0031	GB0038R	7	1	204	S10	15	6	16
Lullington Heath	UK0031	GB0038R	7	17	184	S10	13	2	10.3
Lullington Heath	UK0031	GB0038R	7	18	238	S10	13	10	18.1
Lullington Heath	UK0031	GB0038R	7	19	224	S10	13	5	41.4

- Form 13a Exceedence of ozone information threshold value									
<i>Station name</i>	<i>Zone code</i>	<i>Eol station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Max 1-hour mean ozone concentration ($\mu\text{g}/\text{m}^3$) during exceedence period</i>	<i>Reason code(s)</i>	<i>Starting time of the exceedence period</i>	<i>Total number of exceedence hours</i>	<i>1-hour mean NO_2 concentration ($\mu\text{g}/\text{m}^3$) during maximum ozone concentration</i>
Market Harborough	UK0032	GB0838A	7	19	188	S10	14	2	7.3
Middlesbrough	UK0013	GB0583A	6	10	216	S10	13	3	10
Middlesbrough	UK0013	GB0583A	7	2	186	S10	15	1	17
Narberth	UK0041	GB0043R	7	4	198	S10	15	3	13.9
Northampton	UK0032	GB0738A	7	18	204	S10	17	2	6
Northampton	UK0032	GB0738A	7	19	214	S10	12	11	19
Norwich Centre	UK0029	GB0684A	6	10	186	S10	17	2	11
Portsmouth	UK0012	GB0733A	7	1	210	S10	14	6	6
Portsmouth	UK0012	GB0733A	7	1	186	S10	19	1	15
Portsmouth	UK0012	GB0733A	7	3	190	S10	14	1	6
Portsmouth	UK0012	GB0733A	7	4	182	S10	20	1	2
Portsmouth	UK0012	GB0733A	7	17	216	S10	13	7	8
Portsmouth	UK0012	GB0733A	7	18	230	S10	12	10	17
Portsmouth	UK0012	GB0733A	7	18	214	S10	21	1	17
Portsmouth	UK0012	GB0733A	7	19	188	S10	14	3	34
Preston	UK0023	GB0731A	6	10	188	S10	18	2	
Preston	UK0023	GB0731A	7	2	198	S10	11	4	
Preston	UK0023	GB0731A	7	3	182	S10	14	1	
Preston	UK0023	GB0731A	7	3	184	S10	16	2	
Preston	UK0023	GB0731A	7	3	184	S10	17	1	
Preston	UK0023	GB0731A	7	5	190	S10	19	1	
Preston	UK0023	GB0731A	7	18	218	S10	13	5	
Preston	UK0023	GB0731A	7	18	218	S10	14	4	13
Preston	UK0023	GB0731A	7	19	204	S10	14	4	17
Preston	UK0023	GB0731A	7	20	196	S10	14	1	11
Rochester	UK0031	GB0617A	7	2	184	S10	18	1	13.4
Rochester	UK0031	GB0617A	7	4	200	S10	19	2	47.6
Rochester	UK0031	GB0617A	7	4	198	S10	20	1	48.5
Salford Eccles	UK0003	GB0660A	6	10	182	S10	18	2	17
Salford Eccles	UK0003	GB0660A	7	1	182	S10	18	1	11

- Form 13a Exceedence of ozone information threshold value									
<i>Station name</i>	<i>Zone code</i>	<i>Eol station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Max 1-hour mean ozone concentration (µg/m³) during exceedence period</i>	<i>Reason code(s)</i>	<i>Starting time of the exceedence period</i>	<i>Total number of exceedence hours</i>	<i>1-hour mean NO₂ concentration (µg/m³) during maximum ozone concentration</i>
Sandwell West Bromwich	UK0002	GB0698A	7	17	194	S10	16	4	25
Sandwell West Bromwich	UK0002	GB0698A	7	19	198	S10	13	8	10
Sibton	UK0029	GB0039R	7	4	182	S10	13	1	
Sibton	UK0029	GB0039R	7	4	184	S10	16	2	
Somerton	UK0030	GB0044R	7	4	192	S10	16	3	9.9
Southend-on-Sea	UK0021	GB0728A	6	10	194	S10	15	2	10
Southend-on-Sea	UK0021	GB0728A	7	1	198	S10	14	5	17
Southend-on-Sea	UK0021	GB0728A	7	3	196	S10	17	1	13
Southend-on-Sea	UK0021	GB0728A	7	4	232	S10	16	4	31
Southend-on-Sea	UK0021	GB0728A	7	4	184	S10	21	1	40
Southend-on-Sea	UK0021	GB0728A	7	19	232	S10	13	4	32
Southend-on-Sea	UK0021	GB0728A	7	26	198	S10	14	4	17
St Osyth	UK0029	GB0754A	6	10	184	S10	16	1	15.1
St Osyth	UK0029	GB0754A	7	1	186	S10	16	1	14.1
St Osyth	UK0029	GB0754A	7	4	190	S10	17	2	24.3
St Osyth	UK0029	GB0754A	7	19	206	S10	14	2	24.3
Stoke-on-Trent Centre	UK0014	GB0658A	6	9	192	S10	17	4	19
Stoke-on-Trent Centre	UK0014	GB0658A	7	1	206	S10	15	4	13
Stoke-on-Trent Centre	UK0014	GB0658A	7	2	186	S10	4	2	8
Stoke-on-Trent Centre	UK0014	GB0658A	7	2	214	S10	11	5	23
Stoke-on-Trent Centre	UK0014	GB0658A	7	2	214	S10	13	3	23
Stoke-on-Trent Centre	UK0014	GB0658A	7	3	214	S10	12	8	23
Stoke-on-Trent Centre	UK0014	GB0658A	7	4	218	S10	16	4	19
Stoke-on-Trent Centre	UK0014	GB0658A	7	17	212	S10	17	3	19
Stoke-on-Trent Centre	UK0014	GB0658A	7	18	188	S10	17	3	11
Stoke-on-Trent Centre	UK0014	GB0658A	7	19	244	S10	12	9	17
Strath Vaich	UK0039	GB0015R	7	19	182	S10	17	1	
Sunderland Silksworth	UK0036	GB0863A	6	11	190	S10	18	1	34
Sunderland Silksworth	UK0036	GB0863A	7	18	202	S10	15	1	36
Thurrock	UK0029	GB0645A	7	1	186	S10	15	1	17

- Form 13a Exceedence of ozone information threshold value									
<i>Station name</i>	<i>Zone code</i>	<i>Eol station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Max 1-hour mean ozone concentration (µg/m³) during exceedence period</i>	<i>Reason code(s)</i>	<i>Starting time of the exceedence period</i>	<i>Total number of exceedence hours</i>	<i>1-hour mean NO₂ concentration (µg/m³) during maximum ozone concentration</i>
Thurrock	UK0029	GB0645A	7	4	206	S10	19	3	44
Thurrock	UK0029	GB0645A	7	19	214	S10	14	4	46
Weybourne	UK0029	GB0745A	6	10	188	S10	17	2	
Wicken Fen	UK0029	GB0045R	5	4	184	S10	16	1	14.9
Wicken Fen	UK0029	GB0045R	6	9	196	S10	13	7	9.9
Wicken Fen	UK0029	GB0045R	6	10	210	S10	15	5	6.9
Wicken Fen	UK0029	GB0045R	6	11	190	S10	16	2	9.7
Wicken Fen	UK0029	GB0045R	7	1	222	S10	14	7	2.7
Wicken Fen	UK0029	GB0045R	7	1	222	S10	15	6	5.2
Wicken Fen	UK0029	GB0045R	7	18	210	S10	11	9	3.2
Wicken Fen	UK0029	GB0045R	7	19	278	S10	11	11	17.2
Wicken Fen	UK0029	GB0045R	7	20	184	S10	14	1	
Wicken Fen	UK0029	GB0045R	7	21	192	S10	16	3	4.2
Wicken Fen	UK0029	GB0045R	7	25	184	S10	14	2	1.1
Wicken Fen	UK0029	GB0045R	7	25	186	S10	17	2	1
Wicken Fen	UK0029	GB0045R	7	26	210	S10	11	5	2.9
Wigan Centre	UK0033	GB0864A	7	2	184	S10	11	3	13
Wigan Centre	UK0033	GB0864A	7	18	190	S10	14	9	21
Wigan Centre	UK0033	GB0864A	7	19	182	S10	16	2	32
Wirral Tranmere	UK0020	GB0730A	7	2	196	S10	13	1	6
Wirral Tranmere	UK0020	GB0730A	7	4	188	S10	16	1	2
Wirral Tranmere	UK0020	GB0730A	7	5	182	S10	13	2	
Wirral Tranmere	UK0020	GB0730A	7	18	208	S10	12	5	0
Wirral Tranmere	UK0020	GB0730A	7	18	208	S10	13	4	0
Wolverhampton Centre	UK0002	GB0614A	7	19	182	S10	15	1	
Yarner Wood	UK0030	GB0013R	7	1	204	S10	15	5	8.4
Yarner Wood	UK0030	GB0013R	7	17	188	S10	16	3	
Yarner Wood	UK0030	GB0013R	7	18	234	S10	13	7	
Yarner Wood	UK0030	GB0013R	7	18	204	S10	21	3	
Yarner Wood	UK0030	GB0013R	7	19	196	S10	14	2	

Table 3.5 - Form 13b Individual exceedences of ozone thresholds (2002/3/EC, Article 10(2b) and Annex III)

- Form 13b Exceedence of ozone alert threshold value								
<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Maximum 1-hour mean ozone concentration ($\mu\text{g}/\text{m}^3$) during exceedence period</i>	<i>Reason code(s)</i>	<i>Starting time of the exceedence period</i>	<i>Total number of exceedence hours</i>	<i>1-hour mean NO_2 concentration ($\mu\text{g}/\text{m}^3$) during maximum ozone concentration</i>
UK0014	GB0658A	7	19	244	S10	16	2	17
UK0029	GB0045R	7	19	278	S10	12	8	13

Table 3.6 - Form 13c Individual exceedences of ozone thresholds (2002/3/EC, Article 10(2b) and Annex III)

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
Aberdeen	UK0038	GB0729A	5	7	137	S10
Aberdeen	UK0038	GB0729A	5	8	148	S10
Aberdeen	UK0038	GB0729A	5	9	134	S10
Aberdeen	UK0038	GB0729A	5	11	122	S10
Aston Hill	UK0042	GB0031R	5	4	132	S10
Aston Hill	UK0042	GB0031R	5	11	128	S10
Aston Hill	UK0042	GB0031R	5	12	140	S10
Aston Hill	UK0042	GB0031R	5	13	123	S10
Aston Hill	UK0042	GB0031R	6	9	167	S10
Aston Hill	UK0042	GB0031R	6	10	159	S10
Aston Hill	UK0042	GB0031R	6	11	141	S10
Aston Hill	UK0042	GB0031R	7	1	149	S10
Aston Hill	UK0042	GB0031R	7	2	152	S10
Aston Hill	UK0042	GB0031R	7	3	176	S10
Aston Hill	UK0042	GB0031R	7	4	184	S10
Aston Hill	UK0042	GB0031R	7	5	170	S10
Aston Hill	UK0042	GB0031R	7	16	138	S10
Aston Hill	UK0042	GB0031R	7	17	171	S10
Aston Hill	UK0042	GB0031R	7	18	187	S10
Aston Hill	UK0042	GB0031R	7	19	212	S10
Aston Hill	UK0042	GB0031R	7	20	207	S10
Aston Hill	UK0042	GB0031R	7	24	123	S10
Aston Hill	UK0042	GB0031R	7	25	147	S10
Aston Hill	UK0042	GB0031R	7	26	135	S10
Aston Hill	UK0042	GB0031R	9	10	122	S10
Barnsley Gawber	UK0034	GB0681A	5	4	125	S10
Barnsley Gawber	UK0034	GB0681A	6	9	129	S10
Barnsley Gawber	UK0034	GB0681A	6	10	155	S10
Barnsley Gawber	UK0034	GB0681A	6	11	139	S10
Barnsley Gawber	UK0034	GB0681A	7	1	146	S10
Barnsley Gawber	UK0034	GB0681A	7	2	129	S10
Barnsley Gawber	UK0034	GB0681A	7	3	132	S10
Barnsley Gawber	UK0034	GB0681A	7	4	126	S10
Barnsley Gawber	UK0034	GB0681A	7	16	128	S10
Barnsley Gawber	UK0034	GB0681A	7	17	167	S10
Barnsley Gawber	UK0034	GB0681A	7	18	137	S10
Barnsley Gawber	UK0034	GB0681A	7	19	133	S10
Barnsley Gawber	UK0034	GB0681A	7	20	122	S10
Barnsley Gawber	UK0034	GB0681A	7	25	121	S10
Belfast Centre	UK0028	GB0567A	6	10	125	S10
Belfast Centre	UK0028	GB0567A	7	19	137	S10
Birmingham Centre	UK0002	GB0569A	5	12	124	S10
Birmingham Centre	UK0002	GB0569A	6	9	124	S10
Birmingham Centre	UK0002	GB0569A	6	10	145	S10
Birmingham Centre	UK0002	GB0569A	6	17	128	S10
Birmingham Centre	UK0002	GB0569A	6	30	123	S10
Birmingham Centre	UK0002	GB0569A	7	1	128	S10
Birmingham Centre	UK0002	GB0569A	7	2	159	S10
Birmingham Centre	UK0002	GB0569A	7	3	124	S10
Birmingham Centre	UK0002	GB0569A	7	17	148	S10
Birmingham Centre	UK0002	GB0569A	7	25	121	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
Birmingham Tyburn	UK0002	GB0851A	6	9	154	S10
Birmingham Tyburn	UK0002	GB0851A	6	10	158	S10
Birmingham Tyburn	UK0002	GB0851A	6	11	129	S10
Birmingham Tyburn	UK0002	GB0851A	6	17	131	S10
Birmingham Tyburn	UK0002	GB0851A	6	25	121	S10
Birmingham Tyburn	UK0002	GB0851A	6	30	124	S10
Birmingham Tyburn	UK0002	GB0851A	7	1	146	S10
Birmingham Tyburn	UK0002	GB0851A	7	2	173	S10
Birmingham Tyburn	UK0002	GB0851A	7	3	143	S10
Birmingham Tyburn	UK0002	GB0851A	7	4	143	S10
Birmingham Tyburn	UK0002	GB0851A	7	16	129	S10
Birmingham Tyburn	UK0002	GB0851A	7	17	158	S10
Birmingham Tyburn	UK0002	GB0851A	7	18	145	S10
Birmingham Tyburn	UK0002	GB0851A	7	19	176	S10
Birmingham Tyburn	UK0002	GB0851A	7	25	135	S10
Blackpool Marton	UK0022	GB0882A	5	4	132	S10
Blackpool Marton	UK0022	GB0882A	5	10	121	S10
Blackpool Marton	UK0022	GB0882A	5	12	144	S10
Blackpool Marton	UK0022	GB0882A	5	13	123	S10
Blackpool Marton	UK0022	GB0882A	6	9	146	S10
Blackpool Marton	UK0022	GB0882A	6	10	165	S10
Blackpool Marton	UK0022	GB0882A	6	11	153	S10
Blackpool Marton	UK0022	GB0882A	7	2	177	S10
Blackpool Marton	UK0022	GB0882A	7	3	146	S10
Blackpool Marton	UK0022	GB0882A	7	4	156	S10
Blackpool Marton	UK0022	GB0882A	7	5	149	S10
Blackpool Marton	UK0022	GB0882A	7	6	142	S10
Blackpool Marton	UK0022	GB0882A	7	17	131	S10
Blackpool Marton	UK0022	GB0882A	7	18	207	S10
Blackpool Marton	UK0022	GB0882A	7	19	180	S10
Blackpool Marton	UK0022	GB0882A	7	20	141	S10
Blackpool Marton	UK0022	GB0882A	7	25	143	S10
Bolton	UK0003	GB0654A	5	4	127	S10
Bolton	UK0003	GB0654A	5	11	121	S10
Bolton	UK0003	GB0654A	5	12	123	S10
Bolton	UK0003	GB0654A	6	9	132	S10
Bolton	UK0003	GB0654A	6	10	162	S10
Bolton	UK0003	GB0654A	6	11	143	S10
Bolton	UK0003	GB0654A	7	1	149	S10
Bolton	UK0003	GB0654A	7	2	145	S10
Bolton	UK0003	GB0654A	7	5	144	S10
Bolton	UK0003	GB0654A	7	16	123	S10
Bolton	UK0003	GB0654A	7	17	135	S10
Bolton	UK0003	GB0654A	7	18	155	S10
Bolton	UK0003	GB0654A	7	19	147	S10
Bolton	UK0003	GB0654A	7	20	126	S10
Bolton	UK0003	GB0654A	7	25	136	S10
Bottesford	UK0032	GB0032R	5	4	137	S10
Bottesford	UK0032	GB0032R	6	9	161	S10
Bottesford	UK0032	GB0032R	6	10	170	S10
Bottesford	UK0032	GB0032R	6	11	156	S10
Bottesford	UK0032	GB0032R	6	25	122	S10
Bottesford	UK0032	GB0032R	6	30	133	S10
Bottesford	UK0032	GB0032R	7	1	147	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
Bottesford	UK0032	GB0032R	7	2	171	S10
Bottesford	UK0032	GB0032R	7	3	153	S10
Bottesford	UK0032	GB0032R	7	4	140	S10
Bottesford	UK0032	GB0032R	7	16	128	S10
Bottesford	UK0032	GB0032R	7	17	173	S10
Bottesford	UK0032	GB0032R	7	18	152	S10
Bottesford	UK0032	GB0032R	7	19	179	S10
Bottesford	UK0032	GB0032R	7	20	157	S10
Bottesford	UK0032	GB0032R	7	21	135	S10
Bottesford	UK0032	GB0032R	7	25	139	S10
Bottesford	UK0032	GB0032R	7	26	150	S10
Bottesford	UK0032	GB0032R	7	27	135	S10
Bournemouth	UK0015	GB0741A	6	8	122	S10
Bournemouth	UK0015	GB0741A	6	9	137	S10
Bournemouth	UK0015	GB0741A	6	10	159	S10
Bournemouth	UK0015	GB0741A	6	11	137	S10
Bournemouth	UK0015	GB0741A	6	17	128	S10
Bournemouth	UK0015	GB0741A	6	29	127	S10
Bournemouth	UK0015	GB0741A	6	30	137	S10
Bournemouth	UK0015	GB0741A	7	1	193	S10
Bournemouth	UK0015	GB0741A	7	2	144	S10
Bournemouth	UK0015	GB0741A	7	3	166	S10
Bournemouth	UK0015	GB0741A	7	4	153	S10
Bournemouth	UK0015	GB0741A	7	16	133	S10
Bournemouth	UK0015	GB0741A	7	17	192	S10
Bournemouth	UK0015	GB0741A	7	18	217	S10
Bournemouth	UK0015	GB0741A	7	19	178	S10
Bradford Centre	UK0004	GB0689A	7	1	144	S10
Bradford Centre	UK0004	GB0689A	7	3	134	S10
Bradford Centre	UK0004	GB0689A	7	16	122	S10
Bradford Centre	UK0004	GB0689A	7	17	131	S10
Brighton Preston Park	UK0010	GB0860A	6	9	146	S10
Brighton Preston Park	UK0010	GB0860A	6	10	139	S10
Brighton Preston Park	UK0010	GB0860A	6	11	121	S10
Brighton Preston Park	UK0010	GB0860A	6	12	143	S10
Brighton Preston Park	UK0010	GB0860A	6	18	122	S10
Brighton Preston Park	UK0010	GB0860A	6	25	124	S10
Brighton Preston Park	UK0010	GB0860A	7	1	185	S10
Brighton Preston Park	UK0010	GB0860A	7	2	170	S10
Brighton Preston Park	UK0010	GB0860A	7	3	147	S10
Brighton Preston Park	UK0010	GB0860A	7	4	138	S10
Brighton Preston Park	UK0010	GB0860A	7	16	129	S10
Brighton Preston Park	UK0010	GB0860A	7	17	149	S10
Brighton Preston Park	UK0010	GB0860A	7	18	188	S10
Brighton Preston Park	UK0010	GB0860A	7	19	177	S10
Brighton Preston Park	UK0010	GB0860A	7	20	132	S10
Brighton Preston Park	UK0010	GB0860A	7	25	149	S10
Brighton Preston Park	UK0010	GB0860A	7	26	141	S10
Brighton Preston Park	UK0010	GB0860A	9	11	126	S10
Bury Roadside	UK0003	GB0652A	6	10	136	S10
Bury Roadside	UK0003	GB0652A	6	11	121	S10
Bush Estate	UK0037	GB0033R	5	8	124	S10
Bush Estate	UK0037	GB0033R	5	9	121	S10
Bush Estate	UK0037	GB0033R	6	10	143	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
Cardiff Centre	UK0026	GB0580A	6	8	126	S10
Cardiff Centre	UK0026	GB0580A	6	9	141	S10
Cardiff Centre	UK0026	GB0580A	6	10	128	S10
Cardiff Centre	UK0026	GB0580A	7	2	149	S10
Cardiff Centre	UK0026	GB0580A	7	3	166	S10
Cardiff Centre	UK0026	GB0580A	7	4	166	S10
Cardiff Centre	UK0026	GB0580A	7	5	139	S10
Cardiff Centre	UK0026	GB0580A	7	16	135	S10
Cardiff Centre	UK0026	GB0580A	7	19	172	S10
Cardiff Centre	UK0026	GB0580A	7	25	127	S10
Coventry Memorial Park	UK0017	GB0739A	5	12	140	S10
Coventry Memorial Park	UK0017	GB0739A	6	9	166	S10
Coventry Memorial Park	UK0017	GB0739A	6	10	156	S10
Coventry Memorial Park	UK0017	GB0739A	6	11	121	S10
Coventry Memorial Park	UK0017	GB0739A	6	17	133	S10
Coventry Memorial Park	UK0017	GB0739A	6	18	125	S10
Coventry Memorial Park	UK0017	GB0739A	6	25	127	S10
Coventry Memorial Park	UK0017	GB0739A	6	30	136	S10
Coventry Memorial Park	UK0017	GB0739A	7	1	146	S10
Coventry Memorial Park	UK0017	GB0739A	7	2	171	S10
Coventry Memorial Park	UK0017	GB0739A	7	3	156	S10
Coventry Memorial Park	UK0017	GB0739A	7	4	141	S10
Coventry Memorial Park	UK0017	GB0739A	7	16	121	S10
Coventry Memorial Park	UK0017	GB0739A	7	17	164	S10
Coventry Memorial Park	UK0017	GB0739A	7	18	159	S10
Coventry Memorial Park	UK0017	GB0739A	7	19	187	S10
Coventry Memorial Park	UK0017	GB0739A	7	20	147	S10
Coventry Memorial Park	UK0017	GB0739A	7	21	123	S10
Coventry Memorial Park	UK0017	GB0739A	7	25	148	S10
Cwmbran	UK0041	GB0744A	6	9	145	S10
Cwmbran	UK0041	GB0744A	6	10	148	S10
Cwmbran	UK0041	GB0744A	6	17	139	S10
Cwmbran	UK0041	GB0744A	7	1	132	S10
Cwmbran	UK0041	GB0744A	7	2	147	S10
Cwmbran	UK0041	GB0744A	7	3	163	S10
Cwmbran	UK0041	GB0744A	7	4	165	S10
Cwmbran	UK0041	GB0744A	7	5	141	S10
Cwmbran	UK0041	GB0744A	7	16	123	S10
Cwmbran	UK0041	GB0744A	7	17	154	S10
Cwmbran	UK0041	GB0744A	7	18	153	S10
Cwmbran	UK0041	GB0744A	7	19	188	S10
Cwmbran	UK0041	GB0744A	7	20	134	S10
Cwmbran	UK0041	GB0744A	7	25	143	S10
Derry	UK0043	GB0673A	6	9	132	S10
Derry	UK0043	GB0673A	7	18	136	S10
Derry	UK0043	GB0673A	7	19	178	S10
Derry	UK0043	GB0673A	7	20	148	S10
Edinburgh St Leonards	UK0025	GB0839A	5	4	130	S10
Edinburgh St Leonards	UK0025	GB0839A	5	5	123	S10
Edinburgh St Leonards	UK0025	GB0839A	5	7	133	S10
Edinburgh St Leonards	UK0025	GB0839A	5	8	147	S10
Edinburgh St Leonards	UK0025	GB0839A	5	9	146	S10
Edinburgh St Leonards	UK0025	GB0839A	6	10	133	S10
Eskdalemuir	UK0040	GB0002R	5	8	141	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration (µg/m³)</i>	<i>Reason code(s)</i>
Eskdalemuir	UK0040	GB0002R	5	9	132	S10
Eskdalemuir	UK0040	GB0002R	6	10	147	S10
Eskdalemuir	UK0040	GB0002R	6	11	128	S10
Eskdalemuir	UK0040	GB0002R	7	2	125	S10
Eskdalemuir	UK0040	GB0002R	7	5	163	S10
Eskdalemuir	UK0040	GB0002R	7	18	133	S10
Eskdalemuir	UK0040	GB0002R	7	19	162	S10
Eskdalemuir	UK0040	GB0002R	7	25	138	S10
Exeter Roadside	UK0030	GB0640A	7	1	178	S10
Exeter Roadside	UK0030	GB0640A	7	2	165	S10
Exeter Roadside	UK0030	GB0640A	7	3	144	S10
Exeter Roadside	UK0030	GB0640A	7	4	142	S10
Exeter Roadside	UK0030	GB0640A	7	16	142	S10
Exeter Roadside	UK0030	GB0640A	7	17	152	S10
Exeter Roadside	UK0030	GB0640A	7	18	192	S10
Exeter Roadside	UK0030	GB0640A	7	19	167	S10
Great Dun Fell	UK0033	GB0035R	5	8	124	S10
Great Dun Fell	UK0033	GB0035R	5	12	128	S10
Great Dun Fell	UK0033	GB0035R	6	10	137	S10
Great Dun Fell	UK0033	GB0035R	6	11	126	S10
Great Dun Fell	UK0033	GB0035R	7	1	135	S10
Great Dun Fell	UK0033	GB0035R	7	2	144	S10
Great Dun Fell	UK0033	GB0035R	7	3	133	S10
Great Dun Fell	UK0033	GB0035R	7	4	139	S10
Great Dun Fell	UK0033	GB0035R	7	5	149	S10
Great Dun Fell	UK0033	GB0035R	7	6	150	S10
Great Dun Fell	UK0033	GB0035R	7	18	155	S10
Great Dun Fell	UK0033	GB0035R	7	19	138	S10
Great Dun Fell	UK0033	GB0035R	7	20	156	S10
Harwell	UK0031	GB0036R	5	4	126	S10
Harwell	UK0031	GB0036R	5	12	145	S10
Harwell	UK0031	GB0036R	6	9	133	S10
Harwell	UK0031	GB0036R	6	10	141	S10
Harwell	UK0031	GB0036R	6	17	124	S10
Harwell	UK0031	GB0036R	6	30	130	S10
Harwell	UK0031	GB0036R	7	1	139	S10
Harwell	UK0031	GB0036R	7	2	154	S10
Harwell	UK0031	GB0036R	7	3	157	S10
Harwell	UK0031	GB0036R	7	4	142	S10
Harwell	UK0031	GB0036R	7	16	135	S10
Harwell	UK0031	GB0036R	7	17	132	S10
Harwell	UK0031	GB0036R	7	18	173	S10
Harwell	UK0031	GB0036R	7	19	184	S10
Harwell	UK0031	GB0036R	7	20	144	S10
High Muffles	UK0034	GB0014R	5	4	127	S10
High Muffles	UK0034	GB0014R	5	7	125	S10
High Muffles	UK0034	GB0014R	5	8	150	S10
High Muffles	UK0034	GB0014R	5	9	135	S10
High Muffles	UK0034	GB0014R	5	11	128	S10
High Muffles	UK0034	GB0014R	6	10	152	S10
High Muffles	UK0034	GB0014R	6	11	151	S10
High Muffles	UK0034	GB0014R	7	1	145	S10
High Muffles	UK0034	GB0014R	7	2	148	S10
High Muffles	UK0034	GB0014R	7	3	141	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
High Muffles	UK0034	GB0014R	7	5	160	S10
High Muffles	UK0034	GB0014R	7	6	146	S10
High Muffles	UK0034	GB0014R	7	17	141	S10
High Muffles	UK0034	GB0014R	7	18	139	S10
High Muffles	UK0034	GB0014R	7	19	141	S10
High Muffles	UK0034	GB0014R	7	20	133	S10
Hull Freetown	UK0018	GB0776A	6	10	132	S10
Hull Freetown	UK0018	GB0776A	6	11	124	S10
Hull Freetown	UK0018	GB0776A	7	1	132	S10
Hull Freetown	UK0018	GB0776A	7	2	136	S10
Hull Freetown	UK0018	GB0776A	7	3	129	S10
Hull Freetown	UK0018	GB0776A	7	4	123	S10
Ladybower	UK0032	GB0037R	5	4	133	S10
Ladybower	UK0032	GB0037R	5	12	123	S10
Ladybower	UK0032	GB0037R	6	9	129	S10
Ladybower	UK0032	GB0037R	6	10	156	S10
Ladybower	UK0032	GB0037R	6	11	144	S10
Ladybower	UK0032	GB0037R	7	1	147	S10
Ladybower	UK0032	GB0037R	7	2	134	S10
Ladybower	UK0032	GB0037R	7	3	135	S10
Ladybower	UK0032	GB0037R	7	4	124	S10
Ladybower	UK0032	GB0037R	7	17	140	S10
Ladybower	UK0032	GB0037R	7	19	125	S10
Leamington Spa	UK0035	GB0643A	5	12	138	S10
Leamington Spa	UK0035	GB0643A	6	9	169	S10
Leamington Spa	UK0035	GB0643A	6	10	164	S10
Leamington Spa	UK0035	GB0643A	6	11	129	S10
Leamington Spa	UK0035	GB0643A	6	17	132	S10
Leamington Spa	UK0035	GB0643A	6	25	138	S10
Leamington Spa	UK0035	GB0643A	6	30	132	S10
Leamington Spa	UK0035	GB0643A	7	1	151	S10
Leamington Spa	UK0035	GB0643A	7	2	178	S10
Leamington Spa	UK0035	GB0643A	7	3	164	S10
Leamington Spa	UK0035	GB0643A	7	4	140	S10
Leamington Spa	UK0035	GB0643A	7	16	131	S10
Leamington Spa	UK0035	GB0643A	7	17	169	S10
Leamington Spa	UK0035	GB0643A	7	18	170	S10
Leamington Spa	UK0035	GB0643A	7	19	205	S10
Leamington Spa	UK0035	GB0643A	7	20	158	S10
Leamington Spa	UK0035	GB0643A	7	25	145	S10
Leeds Centre	UK0004	GB0584A	6	10	148	S10
Leeds Centre	UK0004	GB0584A	6	11	134	S10
Leeds Centre	UK0004	GB0584A	7	1	128	S10
Leeds Centre	UK0004	GB0584A	7	3	139	S10
Leeds Centre	UK0004	GB0584A	7	16	127	S10
Leeds Centre	UK0004	GB0584A	7	17	133	S10
Leeds Centre	UK0004	GB0584A	7	19	121	S10
Leicester Centre	UK0011	GB0597A	5	4	133	S10
Leicester Centre	UK0011	GB0597A	6	9	162	S10
Leicester Centre	UK0011	GB0597A	6	10	174	S10
Leicester Centre	UK0011	GB0597A	6	11	152	S10
Leicester Centre	UK0011	GB0597A	6	25	128	S10
Leicester Centre	UK0011	GB0597A	6	30	122	S10
Leicester Centre	UK0011	GB0597A	7	1	143	S10

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Leicester Centre	UK0011	GB0597A	7	2	171	S10
Leicester Centre	UK0011	GB0597A	7	3	148	S10
Leicester Centre	UK0011	GB0597A	7	4	134	S10
Leicester Centre	UK0011	GB0597A	7	16	126	S10
Leicester Centre	UK0011	GB0597A	7	17	156	S10
Leicester Centre	UK0011	GB0597A	7	18	153	S10
Leicester Centre	UK0011	GB0597A	7	19	168	S10
Leicester Centre	UK0011	GB0597A	7	20	127	S10
Leicester Centre	UK0011	GB0597A	7	25	147	S10
Leicester Centre	UK0011	GB0597A	7	26	126	S10
Leominster	UK0035	GB0861A	5	11	124	S10
Leominster	UK0035	GB0861A	5	12	127	S10
Leominster	UK0035	GB0861A	6	9	157	S10
Leominster	UK0035	GB0861A	6	10	151	S10
Leominster	UK0035	GB0861A	6	17	141	S10
Leominster	UK0035	GB0861A	7	1	142	S10
Leominster	UK0035	GB0861A	7	2	155	S10
Leominster	UK0035	GB0861A	7	3	172	S10
Leominster	UK0035	GB0861A	7	4	178	S10
Leominster	UK0035	GB0861A	7	5	135	S10
Leominster	UK0035	GB0861A	7	19	128	S10
Leominster	UK0035	GB0861A	7	25	134	S10
Lerwick	UK0039	GB0881A	5	6	136	S10
Lerwick	UK0039	GB0881A	5	7	136	S10
Lerwick	UK0039	GB0881A	5	8	129	S10
Liverpool Speke	UK0006	GB0777A	6	9	143	S10
Liverpool Speke	UK0006	GB0777A	6	10	154	S10
Liverpool Speke	UK0006	GB0777A	6	11	131	S10
Liverpool Speke	UK0006	GB0777A	7	1	123	S10
Liverpool Speke	UK0006	GB0777A	7	2	159	S10
Liverpool Speke	UK0006	GB0777A	7	4	158	S10
Liverpool Speke	UK0006	GB0777A	7	5	148	S10
Liverpool Speke	UK0006	GB0777A	7	6	140	S10
Liverpool Speke	UK0006	GB0777A	7	17	128	S10
Liverpool Speke	UK0006	GB0777A	7	18	154	S10
Liverpool Speke	UK0006	GB0777A	7	19	183	S10
Liverpool Speke	UK0006	GB0777A	7	20	142	S10
Liverpool Speke	UK0006	GB0777A	7	25	125	S10
London Bexley	UK0001	GB0608A	6	9	140	S10
London Bexley	UK0001	GB0608A	6	10	148	S10
London Bexley	UK0001	GB0608A	6	11	137	S10
London Bexley	UK0001	GB0608A	6	12	135	S10
London Bexley	UK0001	GB0608A	6	17	131	S10
London Bexley	UK0001	GB0608A	6	18	142	S10
London Bexley	UK0001	GB0608A	6	24	126	S10
London Bexley	UK0001	GB0608A	7	18	137	S10
London Bexley	UK0001	GB0608A	7	19	161	S10
London Bexley	UK0001	GB0608A	7	20	134	S10
London Bexley	UK0001	GB0608A	7	21	122	S10
London Bexley	UK0001	GB0608A	7	26	144	S10
London Bexley	UK0001	GB0608A	7	27	126	S10
London Bloomsbury	UK0001	GB0566A	6	17	121	S10
London Bloomsbury	UK0001	GB0566A	6	18	122	S10
London Bloomsbury	UK0001	GB0566A	7	1	125	S10

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London Bloomsbury	UK0001	GB0566A	7	19	134	S10
London Bloomsbury	UK0001	GB0566A	7	20	138	S10
London Bloomsbury	UK0001	GB0566A	7	26	149	S10
London Brent	UK0001	GB0616A	5	4	128	S10
London Brent	UK0001	GB0616A	5	12	128	S10
London Brent	UK0001	GB0616A	6	9	160	S10
London Brent	UK0001	GB0616A	6	10	152	S10
London Brent	UK0001	GB0616A	6	12	138	S10
London Brent	UK0001	GB0616A	6	17	143	S10
London Brent	UK0001	GB0616A	6	18	132	S10
London Brent	UK0001	GB0616A	6	25	130	S10
London Brent	UK0001	GB0616A	6	30	139	S10
London Brent	UK0001	GB0616A	7	1	199	S10
London Brent	UK0001	GB0616A	7	2	172	S10
London Brent	UK0001	GB0616A	7	3	153	S10
London Brent	UK0001	GB0616A	7	4	142	S10
London Brent	UK0001	GB0616A	7	16	138	S10
London Brent	UK0001	GB0616A	7	17	180	S10
London Brent	UK0001	GB0616A	7	18	190	S10
London Brent	UK0001	GB0616A	7	19	202	S10
London Brent	UK0001	GB0616A	7	20	178	S10
London Brent	UK0001	GB0616A	7	21	144	S10
London Brent	UK0001	GB0616A	7	26	182	S10
London Brent	UK0001	GB0616A	7	27	132	S10
London Eltham	UK0001	GB0586A	6	9	133	S10
London Eltham	UK0001	GB0586A	6	10	150	S10
London Eltham	UK0001	GB0586A	6	11	128	S10
London Eltham	UK0001	GB0586A	6	12	141	S10
London Eltham	UK0001	GB0586A	6	17	135	S10
London Eltham	UK0001	GB0586A	6	18	133	S10
London Eltham	UK0001	GB0586A	6	24	123	S10
London Eltham	UK0001	GB0586A	6	30	126	S10
London Eltham	UK0001	GB0586A	7	1	123	S10
London Eltham	UK0001	GB0586A	7	2	143	S10
London Eltham	UK0001	GB0586A	7	3	132	S10
London Eltham	UK0001	GB0586A	7	4	128	S10
London Eltham	UK0001	GB0586A	7	12	122	S10
London Eltham	UK0001	GB0586A	7	16	125	S10
London Eltham	UK0001	GB0586A	7	17	139	S10
London Eltham	UK0001	GB0586A	7	18	140	S10
London Eltham	UK0001	GB0586A	7	19	150	S10
London Eltham	UK0001	GB0586A	7	20	146	S10
London Eltham	UK0001	GB0586A	7	21	133	S10
London Eltham	UK0001	GB0586A	7	26	182	S10
London Eltham	UK0001	GB0586A	7	27	138	S10
London Harlington	UK0001	GB0837A	5	4	126	S10
London Harlington	UK0001	GB0837A	6	9	145	S10
London Harlington	UK0001	GB0837A	6	10	148	S10
London Harlington	UK0001	GB0837A	6	17	137	S10
London Harlington	UK0001	GB0837A	6	18	122	S10
London Harlington	UK0001	GB0837A	6	25	122	S10
London Harlington	UK0001	GB0837A	6	30	147	S10
London Harlington	UK0001	GB0837A	7	1	157	S10
London Harlington	UK0001	GB0837A	7	2	154	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration (µg/m³)</i>	<i>Reason code(s)</i>
London Harlington	UK0001	GB0837A	7	3	137	S10
London Harlington	UK0001	GB0837A	7	4	150	S10
London Harlington	UK0001	GB0837A	7	16	135	S10
London Harlington	UK0001	GB0837A	7	17	172	S10
London Harlington	UK0001	GB0837A	7	18	168	S10
London Harlington	UK0001	GB0837A	7	19	185	S10
London Harlington	UK0001	GB0837A	7	20	152	S10
London Harlington	UK0001	GB0837A	7	21	135	S10
London Harlington	UK0001	GB0837A	7	25	151	S10
London Harlington	UK0001	GB0837A	7	26	167	S10
London Hillingdon	UK0001	GB0642A	7	1	134	S10
London Hillingdon	UK0001	GB0642A	7	17	137	S10
London Hillingdon	UK0001	GB0642A	7	18	128	S10
London Hillingdon	UK0001	GB0642A	7	19	125	S10
London Lewisham	UK0001	GB0672A	6	10	127	S10
London Lewisham	UK0001	GB0672A	7	2	124	S10
London Lewisham	UK0001	GB0672A	7	19	128	S10
London N. Kensington	UK0001	GB0620A	5	12	129	S10
London N. Kensington	UK0001	GB0620A	6	9	145	S10
London N. Kensington	UK0001	GB0620A	6	10	145	S10
London N. Kensington	UK0001	GB0620A	6	12	140	S10
London N. Kensington	UK0001	GB0620A	6	17	148	S10
London N. Kensington	UK0001	GB0620A	6	18	141	S10
London N. Kensington	UK0001	GB0620A	6	30	134	S10
London N. Kensington	UK0001	GB0620A	7	1	161	S10
London N. Kensington	UK0001	GB0620A	7	2	140	S10
London N. Kensington	UK0001	GB0620A	7	3	130	S10
London N. Kensington	UK0001	GB0620A	7	4	137	S10
London N. Kensington	UK0001	GB0620A	7	17	154	S10
London N. Kensington	UK0001	GB0620A	7	18	166	S10
London N. Kensington	UK0001	GB0620A	7	19	173	S10
London N. Kensington	UK0001	GB0620A	7	20	168	S10
London N. Kensington	UK0001	GB0620A	7	21	140	S10
London N. Kensington	UK0001	GB0620A	7	26	178	S10
London N. Kensington	UK0001	GB0620A	7	27	131	S10
London Teddington	UK0001	GB0644A	5	4	147	S10
London Teddington	UK0001	GB0644A	5	12	134	S10
London Teddington	UK0001	GB0644A	6	8	123	S10
London Teddington	UK0001	GB0644A	6	9	158	S10
London Teddington	UK0001	GB0644A	6	10	156	S10
London Teddington	UK0001	GB0644A	6	11	130	S10
London Teddington	UK0001	GB0644A	6	12	139	S10
London Teddington	UK0001	GB0644A	6	17	148	S10
London Teddington	UK0001	GB0644A	6	18	143	S10
London Teddington	UK0001	GB0644A	6	25	129	S10
London Teddington	UK0001	GB0644A	6	30	157	S10
London Teddington	UK0001	GB0644A	7	1	170	S10
London Teddington	UK0001	GB0644A	7	2	152	S10
London Teddington	UK0001	GB0644A	7	3	150	S10
London Teddington	UK0001	GB0644A	7	4	154	S10
London Teddington	UK0001	GB0644A	7	16	133	S10
London Teddington	UK0001	GB0644A	7	17	167	S10
London Teddington	UK0001	GB0644A	7	18	171	S10
London Teddington	UK0001	GB0644A	7	19	193	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
London Teddington	UK0001	GB0644A	7	20	171	S10
London Teddington	UK0001	GB0644A	7	21	143	S10
London Teddington	UK0001	GB0644A	7	25	165	S10
London Teddington	UK0001	GB0644A	7	26	184	S10
London Teddington	UK0001	GB0644A	7	27	149	S10
London Teddington	UK0001	GB0644A	9	10	124	S10
London Wandsworth	UK0001	GB0622A	6	9	123	S10
London Wandsworth	UK0001	GB0622A	6	10	134	S10
London Wandsworth	UK0001	GB0622A	6	12	121	S10
London Wandsworth	UK0001	GB0622A	6	17	128	S10
London Wandsworth	UK0001	GB0622A	6	18	123	S10
London Wandsworth	UK0001	GB0622A	6	24	123	S10
London Wandsworth	UK0001	GB0622A	6	25	124	S10
London Wandsworth	UK0001	GB0622A	6	30	152	S10
London Wandsworth	UK0001	GB0622A	7	1	125	S10
London Wandsworth	UK0001	GB0622A	7	2	130	S10
London Wandsworth	UK0001	GB0622A	7	18	125	S10
London Wandsworth	UK0001	GB0622A	7	19	144	S10
London Wandsworth	UK0001	GB0622A	7	20	142	S10
London Wandsworth	UK0001	GB0622A	7	25	129	S10
London Wandsworth	UK0001	GB0622A	7	26	155	S10
London Westminster	UK0001	GB0743A	6	9	135	S10
London Westminster	UK0001	GB0743A	6	10	149	S10
London Westminster	UK0001	GB0743A	6	12	138	S10
London Westminster	UK0001	GB0743A	6	17	142	S10
London Westminster	UK0001	GB0743A	6	18	137	S10
London Westminster	UK0001	GB0743A	7	1	146	S10
London Westminster	UK0001	GB0743A	7	2	132	S10
London Westminster	UK0001	GB0743A	7	3	121	S10
London Westminster	UK0001	GB0743A	7	17	124	S10
London Westminster	UK0001	GB0743A	7	18	139	S10
London Westminster	UK0001	GB0743A	7	19	148	S10
London Westminster	UK0001	GB0743A	7	20	147	S10
London Westminster	UK0001	GB0743A	7	21	130	S10
London Westminster	UK0001	GB0743A	7	26	161	S10
London Westminster	UK0001	GB0743A	7	27	122	S10
Lough Navar	UK0043	GB0006R	5	11	123	S10
Lough Navar	UK0043	GB0006R	6	9	133	S10
Lough Navar	UK0043	GB0006R	6	10	121	S10
Lough Navar	UK0043	GB0006R	7	18	143	S10
Lough Navar	UK0043	GB0006R	7	19	158	S10
Lullington Heath	UK0031	GB0038R	5	4	126	S10
Lullington Heath	UK0031	GB0038R	5	12	126	S10
Lullington Heath	UK0031	GB0038R	6	8	133	S10
Lullington Heath	UK0031	GB0038R	6	9	163	S10
Lullington Heath	UK0031	GB0038R	6	10	139	S10
Lullington Heath	UK0031	GB0038R	6	11	126	S10
Lullington Heath	UK0031	GB0038R	6	12	156	S10
Lullington Heath	UK0031	GB0038R	6	13	147	S10
Lullington Heath	UK0031	GB0038R	6	17	144	S10
Lullington Heath	UK0031	GB0038R	6	18	144	S10
Lullington Heath	UK0031	GB0038R	6	24	122	S10
Lullington Heath	UK0031	GB0038R	7	1	192	S10
Lullington Heath	UK0031	GB0038R	7	2	169	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration (µg/m³)</i>	<i>Reason code(s)</i>
Lullington Heath	UK0031	GB0038R	7	3	153	S10
Lullington Heath	UK0031	GB0038R	7	4	147	S10
Lullington Heath	UK0031	GB0038R	7	5	137	S10
Lullington Heath	UK0031	GB0038R	7	16	126	S10
Lullington Heath	UK0031	GB0038R	7	17	170	S10
Lullington Heath	UK0031	GB0038R	7	18	212	S10
Lullington Heath	UK0031	GB0038R	7	19	193	S10
Lullington Heath	UK0031	GB0038R	7	20	134	S10
Lullington Heath	UK0031	GB0038R	7	21	122	S10
Lullington Heath	UK0031	GB0038R	7	25	150	S10
Lullington Heath	UK0031	GB0038R	7	26	155	S10
Lullington Heath	UK0031	GB0038R	9	10	137	S10
Lullington Heath	UK0031	GB0038R	9	11	139	S10
Lullington Heath	UK0031	GB0038R	9	21	124	S10
Manchester Piccadilly	UK0003	GB0613A	7	2	132	S10
Manchester Piccadilly	UK0003	GB0613A	7	19	125	S10
Manchester South	UK0003	GB0649A	7	2	121	S10
Manchester South	UK0003	GB0649A	7	3	127	S10
Manchester South	UK0003	GB0649A	7	4	129	S10
Manchester South	UK0003	GB0649A	7	17	132	S10
Manchester South	UK0003	GB0649A	7	20	126	S10
Market Harborough	UK0032	GB0838A	5	11	123	S10
Market Harborough	UK0032	GB0838A	5	12	134	S10
Market Harborough	UK0032	GB0838A	6	9	163	S10
Market Harborough	UK0032	GB0838A	6	10	169	S10
Market Harborough	UK0032	GB0838A	6	11	145	S10
Market Harborough	UK0032	GB0838A	6	17	123	S10
Market Harborough	UK0032	GB0838A	6	25	123	S10
Market Harborough	UK0032	GB0838A	6	30	144	S10
Market Harborough	UK0032	GB0838A	7	1	151	S10
Market Harborough	UK0032	GB0838A	7	2	161	S10
Market Harborough	UK0032	GB0838A	7	3	155	S10
Market Harborough	UK0032	GB0838A	7	4	146	S10
Market Harborough	UK0032	GB0838A	7	16	127	S10
Market Harborough	UK0032	GB0838A	7	17	169	S10
Market Harborough	UK0032	GB0838A	7	18	161	S10
Market Harborough	UK0032	GB0838A	7	19	174	S10
Market Harborough	UK0032	GB0838A	7	20	144	S10
Market Harborough	UK0032	GB0838A	7	21	136	S10
Market Harborough	UK0032	GB0838A	7	26	162	S10
Market Harborough	UK0032	GB0838A	7	27	123	S10
Middlesbrough	UK0013	GB0583A	5	4	149	S10
Middlesbrough	UK0013	GB0583A	5	5	128	S10
Middlesbrough	UK0013	GB0583A	6	10	178	S10
Middlesbrough	UK0013	GB0583A	6	11	158	S10
Middlesbrough	UK0013	GB0583A	7	1	143	S10
Middlesbrough	UK0013	GB0583A	7	2	162	S10
Narberth	UK0041	GB0043R	5	11	125	S10
Narberth	UK0041	GB0043R	6	6	123	S10
Narberth	UK0041	GB0043R	6	8	146	S10
Narberth	UK0041	GB0043R	6	9	158	S10
Narberth	UK0041	GB0043R	6	10	152	S10
Narberth	UK0041	GB0043R	7	4	169	S10
Narberth	UK0041	GB0043R	7	5	162	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration (µg/m³)</i>	<i>Reason code(s)</i>
Narberth	UK0041	GB0043R	7	20	131	S10
Newcastle Centre	UK0005	GB0568A	5	8	122	S10
Newcastle Centre	UK0005	GB0568A	5	9	122	S10
Newcastle Centre	UK0005	GB0568A	7	2	158	S10
Newcastle Centre	UK0005	GB0568A	7	18	141	S10
Northampton	UK0032	GB0738A	5	4	121	S10
Northampton	UK0032	GB0738A	5	12	132	S10
Northampton	UK0032	GB0738A	6	9	168	S10
Northampton	UK0032	GB0738A	6	10	168	S10
Northampton	UK0032	GB0738A	6	11	138	S10
Northampton	UK0032	GB0738A	6	17	143	S10
Northampton	UK0032	GB0738A	6	18	126	S10
Northampton	UK0032	GB0738A	6	25	133	S10
Northampton	UK0032	GB0738A	6	30	143	S10
Northampton	UK0032	GB0738A	7	1	166	S10
Northampton	UK0032	GB0738A	7	2	166	S10
Northampton	UK0032	GB0738A	7	16	134	S10
Northampton	UK0032	GB0738A	7	17	163	S10
Northampton	UK0032	GB0738A	7	18	175	S10
Northampton	UK0032	GB0738A	7	19	203	S10
Northampton	UK0032	GB0738A	7	20	186	S10
Northampton	UK0032	GB0738A	7	21	130	S10
Northampton	UK0032	GB0738A	7	25	161	S10
Northampton	UK0032	GB0738A	7	26	142	S10
Norwich Centre	UK0029	GB0684A	6	9	122	S10
Norwich Centre	UK0029	GB0684A	6	10	170	S10
Norwich Centre	UK0029	GB0684A	6	11	149	S10
Norwich Centre	UK0029	GB0684A	6	12	140	S10
Norwich Centre	UK0029	GB0684A	6	18	124	S10
Norwich Centre	UK0029	GB0684A	7	1	152	S10
Norwich Centre	UK0029	GB0684A	7	2	136	S10
Norwich Centre	UK0029	GB0684A	7	3	141	S10
Norwich Centre	UK0029	GB0684A	7	4	142	S10
Norwich Centre	UK0029	GB0684A	7	5	122	S10
Norwich Centre	UK0029	GB0684A	7	18	134	S10
Norwich Centre	UK0029	GB0684A	7	19	138	S10
Norwich Centre	UK0029	GB0684A	7	20	140	S10
Norwich Centre	UK0029	GB0684A	7	21	124	S10
Norwich Centre	UK0029	GB0684A	7	25	122	S10
Norwich Centre	UK0029	GB0684A	7	26	143	S10
Norwich Centre	UK0029	GB0684A	7	27	121	S10
Nottingham Centre	UK0008	GB0646A	6	9	137	S10
Nottingham Centre	UK0008	GB0646A	6	10	156	S10
Nottingham Centre	UK0008	GB0646A	6	11	136	S10
Nottingham Centre	UK0008	GB0646A	7	1	123	S10
Nottingham Centre	UK0008	GB0646A	7	2	148	S10
Nottingham Centre	UK0008	GB0646A	7	3	127	S10
Nottingham Centre	UK0008	GB0646A	7	4	123	S10
Nottingham Centre	UK0008	GB0646A	7	17	160	S10
Nottingham Centre	UK0008	GB0646A	7	18	126	S10
Nottingham Centre	UK0008	GB0646A	7	19	159	S10
Nottingham Centre	UK0008	GB0646A	7	20	121	S10
Port Talbot	UK0027	GB0651A	5	11	125	S10
Port Talbot	UK0027	GB0651A	6	8	124	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration (µg/m³)</i>	<i>Reason code(s)</i>
Port Talbot	UK0027	GB0651A	6	9	146	S10
Port Talbot	UK0027	GB0651A	6	10	141	S10
Port Talbot	UK0027	GB0651A	7	1	141	S10
Port Talbot	UK0027	GB0651A	7	2	152	S10
Port Talbot	UK0027	GB0651A	7	3	133	S10
Port Talbot	UK0027	GB0651A	7	4	160	S10
Port Talbot	UK0027	GB0651A	7	16	125	S10
Port Talbot	UK0027	GB0651A	7	19	168	S10
Portsmouth	UK0012	GB0733A	6	8	128	S10
Portsmouth	UK0012	GB0733A	6	9	139	S10
Portsmouth	UK0012	GB0733A	6	10	143	S10
Portsmouth	UK0012	GB0733A	6	17	134	S10
Portsmouth	UK0012	GB0733A	6	18	137	S10
Portsmouth	UK0012	GB0733A	6	29	130	S10
Portsmouth	UK0012	GB0733A	6	30	128	S10
Portsmouth	UK0012	GB0733A	7	1	192	S10
Portsmouth	UK0012	GB0733A	7	2	140	S10
Portsmouth	UK0012	GB0733A	7	3	161	S10
Portsmouth	UK0012	GB0733A	7	4	154	S10
Portsmouth	UK0012	GB0733A	7	5	142	S10
Portsmouth	UK0012	GB0733A	7	16	137	S10
Portsmouth	UK0012	GB0733A	7	17	197	S10
Portsmouth	UK0012	GB0733A	7	18	212	S10
Portsmouth	UK0012	GB0733A	7	19	173	S10
Portsmouth	UK0012	GB0733A	7	20	122	S10
Portsmouth	UK0012	GB0733A	7	25	144	S10
Portsmouth	UK0012	GB0733A	7	26	154	S10
Preston	UK0023	GB0731A	5	4	128	S10
Preston	UK0023	GB0731A	5	9	121	S10
Preston	UK0023	GB0731A	5	12	142	S10
Preston	UK0023	GB0731A	5	13	122	S10
Preston	UK0023	GB0731A	6	9	145	S10
Preston	UK0023	GB0731A	6	10	174	S10
Preston	UK0023	GB0731A	6	11	156	S10
Preston	UK0023	GB0731A	7	1	144	S10
Preston	UK0023	GB0731A	7	2	178	S10
Preston	UK0023	GB0731A	7	3	172	S10
Preston	UK0023	GB0731A	7	4	142	S10
Preston	UK0023	GB0731A	7	5	164	S10
Preston	UK0023	GB0731A	7	6	150	S10
Preston	UK0023	GB0731A	7	18	195	S10
Preston	UK0023	GB0731A	7	19	173	S10
Preston	UK0023	GB0731A	7	20	143	S10
Preston	UK0023	GB0731A	7	25	148	S10
Reading New Town	UK0016	GB0840A	5	4	131	S10
Reading New Town	UK0016	GB0840A	5	12	128	S10
Reading New Town	UK0016	GB0840A	6	8	125	S10
Reading New Town	UK0016	GB0840A	6	9	153	S10
Reading New Town	UK0016	GB0840A	6	10	155	S10
Reading New Town	UK0016	GB0840A	6	12	131	S10
Reading New Town	UK0016	GB0840A	6	17	151	S10
Reading New Town	UK0016	GB0840A	6	18	131	S10
Reading New Town	UK0016	GB0840A	6	29	124	S10
Reading New Town	UK0016	GB0840A	6	30	139	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration (µg/m³)</i>	<i>Reason code(s)</i>
Reading New Town	UK0016	GB0840A	7	1	149	S10
Reading New Town	UK0016	GB0840A	7	2	158	S10
Reading New Town	UK0016	GB0840A	7	3	158	S10
Reading New Town	UK0016	GB0840A	7	16	145	S10
Reading New Town	UK0016	GB0840A	7	21	126	S10
Reading New Town	UK0016	GB0840A	7	25	146	S10
Reading New Town	UK0016	GB0840A	7	26	152	S10
Redcar	UK0013	GB0679A	5	8	133	S10
Redcar	UK0013	GB0679A	5	9	127	S10
Redcar	UK0013	GB0679A	7	1	129	S10
Redcar	UK0013	GB0679A	7	17	133	S10
Redcar	UK0013	GB0679A	7	18	140	S10
Rochester	UK0031	GB0617A	5	12	126	S10
Rochester	UK0031	GB0617A	6	10	128	S10
Rochester	UK0031	GB0617A	6	12	126	S10
Rochester	UK0031	GB0617A	6	17	126	S10
Rochester	UK0031	GB0617A	6	18	129	S10
Rochester	UK0031	GB0617A	7	2	150	S10
Rochester	UK0031	GB0617A	7	3	137	S10
Rochester	UK0031	GB0617A	7	4	144	S10
Rochester	UK0031	GB0617A	7	19	121	S10
Rochester	UK0031	GB0617A	7	20	121	S10
Rochester	UK0031	GB0617A	7	26	134	S10
Rochester	UK0031	GB0617A	7	27	125	S10
Rotherham Centre	UK0007	GB0677A	6	10	127	S10
Rotherham Centre	UK0007	GB0677A	7	17	131	S10
Salford Eccles	UK0003	GB0660A	6	9	144	S10
Salford Eccles	UK0003	GB0660A	6	10	168	S10
Salford Eccles	UK0003	GB0660A	6	11	152	S10
Salford Eccles	UK0003	GB0660A	7	1	165	S10
Salford Eccles	UK0003	GB0660A	7	2	164	S10
Salford Eccles	UK0003	GB0660A	7	3	136	S10
Salford Eccles	UK0003	GB0660A	7	4	158	S10
Salford Eccles	UK0003	GB0660A	7	5	134	S10
Salford Eccles	UK0003	GB0660A	7	16	137	S10
Salford Eccles	UK0003	GB0660A	7	17	133	S10
Salford Eccles	UK0003	GB0660A	7	18	151	S10
Salford Eccles	UK0003	GB0660A	7	19	162	S10
Sandwell West Bromwich	UK0002	GB0698A	5	12	121	S10
Sandwell West Bromwich	UK0002	GB0698A	6	9	157	S10
Sandwell West Bromwich	UK0002	GB0698A	6	10	152	S10
Sandwell West Bromwich	UK0002	GB0698A	6	11	133	S10
Sandwell West Bromwich	UK0002	GB0698A	6	17	128	S10
Sandwell West Bromwich	UK0002	GB0698A	7	1	139	S10
Sandwell West Bromwich	UK0002	GB0698A	7	2	161	S10
Sandwell West Bromwich	UK0002	GB0698A	7	3	151	S10
Sandwell West Bromwich	UK0002	GB0698A	7	4	147	S10
Sandwell West Bromwich	UK0002	GB0698A	7	16	134	S10
Sandwell West Bromwich	UK0002	GB0698A	7	17	175	S10
Sandwell West Bromwich	UK0002	GB0698A	7	18	155	S10
Sandwell West Bromwich	UK0002	GB0698A	7	19	166	S10
Sibton	UK0029	GB0039R	5	12	133	S10
Sibton	UK0029	GB0039R	6	9	128	S10
Sibton	UK0029	GB0039R	6	10	170	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration (µg/m³)</i>	<i>Reason code(s)</i>
Sibton	UK0029	GB0039R	6	11	142	S10
Sibton	UK0029	GB0039R	6	12	127	S10
Sibton	UK0029	GB0039R	6	18	138	S10
Sibton	UK0029	GB0039R	7	1	156	S10
Sibton	UK0029	GB0039R	7	2	133	S10
Sibton	UK0029	GB0039R	7	3	131	S10
Sibton	UK0029	GB0039R	7	4	172	S10
Sibton	UK0029	GB0039R	7	5	132	S10
Sibton	UK0029	GB0039R	7	17	137	S10
Sibton	UK0029	GB0039R	7	18	133	S10
Sibton	UK0029	GB0039R	7	19	156	S10
Sibton	UK0029	GB0039R	7	20	151	S10
Sibton	UK0029	GB0039R	7	21	135	S10
Sibton	UK0029	GB0039R	7	22	123	S10
Sibton	UK0029	GB0039R	7	25	127	S10
Sibton	UK0029	GB0039R	7	26	147	S10
Sibton	UK0029	GB0039R	7	27	133	S10
Sibton	UK0029	GB0039R	7	28	138	S10
Somerton	UK0030	GB0044R	5	11	128	S10
Somerton	UK0030	GB0044R	6	9	137	S10
Somerton	UK0030	GB0044R	6	10	138	S10
Somerton	UK0030	GB0044R	6	17	137	S10
Somerton	UK0030	GB0044R	7	1	130	S10
Somerton	UK0030	GB0044R	7	2	148	S10
Somerton	UK0030	GB0044R	7	3	167	S10
Somerton	UK0030	GB0044R	7	4	174	S10
Somerton	UK0030	GB0044R	7	5	123	S10
Somerton	UK0030	GB0044R	7	16	135	S10
Somerton	UK0030	GB0044R	7	25	134	S10
Southampton Centre	UK0019	GB0598A	7	1	123	S10
Southampton Centre	UK0019	GB0598A	7	18	139	S10
Southend-on-Sea	UK0021	GB0728A	5	12	145	S10
Southend-on-Sea	UK0021	GB0728A	6	9	164	S10
Southend-on-Sea	UK0021	GB0728A	6	10	172	S10
Southend-on-Sea	UK0021	GB0728A	6	11	150	S10
Southend-on-Sea	UK0021	GB0728A	6	12	155	S10
Southend-on-Sea	UK0021	GB0728A	6	16	121	S10
Southend-on-Sea	UK0021	GB0728A	6	17	154	S10
Southend-on-Sea	UK0021	GB0728A	6	18	154	S10
Southend-on-Sea	UK0021	GB0728A	6	19	139	S10
Southend-on-Sea	UK0021	GB0728A	6	25	130	S10
Southend-on-Sea	UK0021	GB0728A	7	1	183	S10
Southend-on-Sea	UK0021	GB0728A	7	2	166	S10
Southend-on-Sea	UK0021	GB0728A	7	3	164	S10
Southend-on-Sea	UK0021	GB0728A	7	4	188	S10
Southend-on-Sea	UK0021	GB0728A	7	5	156	S10
Southend-on-Sea	UK0021	GB0728A	7	6	126	S10
Southend-on-Sea	UK0021	GB0728A	7	12	125	S10
Southend-on-Sea	UK0021	GB0728A	7	16	125	S10
Southend-on-Sea	UK0021	GB0728A	7	17	152	S10
Southend-on-Sea	UK0021	GB0728A	7	18	163	S10
Southend-on-Sea	UK0021	GB0728A	7	19	188	S10
Southend-on-Sea	UK0021	GB0728A	7	20	148	S10
Southend-on-Sea	UK0021	GB0728A	7	21	132	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
Southend-on-Sea	UK0021	GB0728A	7	22	136	S10
Southend-on-Sea	UK0021	GB0728A	7	25	151	S10
Southend-on-Sea	UK0021	GB0728A	7	26	179	S10
Southend-on-Sea	UK0021	GB0728A	7	27	147	S10
Southend-on-Sea	UK0021	GB0728A	7	28	145	S10
St Osyth	UK0029	GB0754A	5	13	126	S10
St Osyth	UK0029	GB0754A	6	9	138	S10
St Osyth	UK0029	GB0754A	6	10	155	S10
St Osyth	UK0029	GB0754A	6	17	123	S10
St Osyth	UK0029	GB0754A	6	18	127	S10
St Osyth	UK0029	GB0754A	7	1	170	S10
St Osyth	UK0029	GB0754A	7	2	149	S10
St Osyth	UK0029	GB0754A	7	3	134	S10
St Osyth	UK0029	GB0754A	7	4	150	S10
St Osyth	UK0029	GB0754A	7	5	123	S10
St Osyth	UK0029	GB0754A	7	17	142	S10
St Osyth	UK0029	GB0754A	7	18	139	S10
St Osyth	UK0029	GB0754A	7	19	175	S10
St Osyth	UK0029	GB0754A	7	20	146	S10
St Osyth	UK0029	GB0754A	7	22	139	S10
St Osyth	UK0029	GB0754A	7	26	123	S10
St Osyth	UK0029	GB0754A	7	27	124	S10
St Osyth	UK0029	GB0754A	7	28	134	S10
Stoke-on-Trent Centre	UK0014	GB0658A	5	4	135	S10
Stoke-on-Trent Centre	UK0014	GB0658A	5	11	125	S10
Stoke-on-Trent Centre	UK0014	GB0658A	6	9	177	S10
Stoke-on-Trent Centre	UK0014	GB0658A	6	10	170	S10
Stoke-on-Trent Centre	UK0014	GB0658A	6	25	130	S10
Stoke-on-Trent Centre	UK0014	GB0658A	6	26	128	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	1	183	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	2	187	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	3	197	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	4	189	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	5	158	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	6	134	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	16	159	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	17	182	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	18	178	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	19	230	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	20	185	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	21	122	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	24	126	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	25	159	S10
Stoke-on-Trent Centre	UK0014	GB0658A	7	26	136	S10
Strath Vaich	UK0039	GB0015R	5	4	131	S10
Strath Vaich	UK0039	GB0015R	5	5	136	S10
Strath Vaich	UK0039	GB0015R	5	7	128	S10
Strath Vaich	UK0039	GB0015R	5	8	161	S10
Strath Vaich	UK0039	GB0015R	5	9	147	S10
Strath Vaich	UK0039	GB0015R	5	10	122	S10
Strath Vaich	UK0039	GB0015R	5	11	146	S10
Strath Vaich	UK0039	GB0015R	6	10	157	S10
Strath Vaich	UK0039	GB0015R	6	11	154	S10
Strath Vaich	UK0039	GB0015R	7	19	151	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration (µg/m³)</i>	<i>Reason code(s)</i>
Strath Vaich	UK0039	GB0015R	7	20	126	S10
Sunderland Silksworth	UK0036	GB0863A	5	8	138	S10
Sunderland Silksworth	UK0036	GB0863A	5	9	134	S10
Sunderland Silksworth	UK0036	GB0863A	6	11	151	S10
Sunderland Silksworth	UK0036	GB0863A	7	1	126	S10
Sunderland Silksworth	UK0036	GB0863A	7	2	139	S10
Sunderland Silksworth	UK0036	GB0863A	7	4	131	S10
Sunderland Silksworth	UK0036	GB0863A	7	5	127	S10
Sunderland Silksworth	UK0036	GB0863A	7	17	146	S10
Sunderland Silksworth	UK0036	GB0863A	7	18	166	S10
Sunderland Silksworth	UK0036	GB0863A	7	19	121	S10
Thurrock	UK0029	GB0645A	6	9	141	S10
Thurrock	UK0029	GB0645A	6	10	125	S10
Thurrock	UK0029	GB0645A	6	11	121	S10
Thurrock	UK0029	GB0645A	6	18	130	S10
Thurrock	UK0029	GB0645A	7	1	168	S10
Thurrock	UK0029	GB0645A	7	2	143	S10
Thurrock	UK0029	GB0645A	7	3	135	S10
Thurrock	UK0029	GB0645A	7	4	167	S10
Thurrock	UK0029	GB0645A	7	5	146	S10
Thurrock	UK0029	GB0645A	7	17	130	S10
Thurrock	UK0029	GB0645A	7	18	153	S10
Thurrock	UK0029	GB0645A	7	19	170	S10
Thurrock	UK0029	GB0645A	7	20	128	S10
Thurrock	UK0029	GB0645A	7	26	129	S10
Weybourne	UK0029	GB0745A	5	11	132	S10
Weybourne	UK0029	GB0745A	5	12	142	S10
Weybourne	UK0029	GB0745A	5	13	140	S10
Weybourne	UK0029	GB0745A	6	10	172	S10
Weybourne	UK0029	GB0745A	6	11	165	S10
Weybourne	UK0029	GB0745A	6	12	157	S10
Weybourne	UK0029	GB0745A	6	13	146	S10
Weybourne	UK0029	GB0745A	6	18	131	S10
Weybourne	UK0029	GB0745A	6	25	124	S10
Weybourne	UK0029	GB0745A	7	2	143	S10
Weybourne	UK0029	GB0745A	7	3	142	S10
Weybourne	UK0029	GB0745A	7	5	127	S10
Weybourne	UK0029	GB0745A	7	18	136	S10
Weybourne	UK0029	GB0745A	7	20	132	S10
Weybourne	UK0029	GB0745A	7	21	127	S10
Weybourne	UK0029	GB0745A	7	22	121	S10
Weybourne	UK0029	GB0745A	7	23	126	S10
Weybourne	UK0029	GB0745A	7	26	129	S10
Weybourne	UK0029	GB0745A	7	27	125	S10
Weybourne	UK0029	GB0745A	7	28	124	S10
Weybourne	UK0029	GB0745A	7	29	122	S10
Weybourne	UK0029	GB0745A	9	11	130	S10
Weybourne	UK0029	GB0745A	9	15	121	S10
Weybourne	UK0029	GB0745A	9	16	122	S10
Wicken Fen	UK0029	GB0045R	4	30	121	S10
Wicken Fen	UK0029	GB0045R	5	4	146	S10
Wicken Fen	UK0029	GB0045R	5	10	143	S10
Wicken Fen	UK0029	GB0045R	5	11	133	S10
Wicken Fen	UK0029	GB0045R	5	13	131	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
Wicken Fen	UK0029	GB0045R	5	14	129	S10
Wicken Fen	UK0029	GB0045R	6	8	128	S10
Wicken Fen	UK0029	GB0045R	6	9	189	S10
Wicken Fen	UK0029	GB0045R	6	10	192	S10
Wicken Fen	UK0029	GB0045R	6	11	170	S10
Wicken Fen	UK0029	GB0045R	6	12	168	S10
Wicken Fen	UK0029	GB0045R	6	16	139	S10
Wicken Fen	UK0029	GB0045R	6	17	136	S10
Wicken Fen	UK0029	GB0045R	6	18	141	S10
Wicken Fen	UK0029	GB0045R	6	24	126	S10
Wicken Fen	UK0029	GB0045R	6	25	150	S10
Wicken Fen	UK0029	GB0045R	6	26	128	S10
Wicken Fen	UK0029	GB0045R	6	29	129	S10
Wicken Fen	UK0029	GB0045R	6	30	158	S10
Wicken Fen	UK0029	GB0045R	7	1	206	S10
Wicken Fen	UK0029	GB0045R	7	2	171	S10
Wicken Fen	UK0029	GB0045R	7	3	171	S10
Wicken Fen	UK0029	GB0045R	7	4	132	S10
Wicken Fen	UK0029	GB0045R	7	5	121	S10
Wicken Fen	UK0029	GB0045R	7	6	130	S10
Wicken Fen	UK0029	GB0045R	7	12	131	S10
Wicken Fen	UK0029	GB0045R	7	16	161	S10
Wicken Fen	UK0029	GB0045R	7	17	151	S10
Wicken Fen	UK0029	GB0045R	7	18	205	S10
Wicken Fen	UK0029	GB0045R	7	19	260	S10
Wicken Fen	UK0029	GB0045R	7	20	203	S10
Wicken Fen	UK0029	GB0045R	7	21	176	S10
Wicken Fen	UK0029	GB0045R	7	22	133	S10
Wicken Fen	UK0029	GB0045R	7	24	137	S10
Wicken Fen	UK0029	GB0045R	7	25	179	S10
Wicken Fen	UK0029	GB0045R	7	26	183	S10
Wicken Fen	UK0029	GB0045R	7	27	138	S10
Wicken Fen	UK0029	GB0045R	9	10	126	S10
Wicken Fen	UK0029	GB0045R	9	11	135	S10
Wigan Centre	UK0033	GB0864A	4	27	121	S10
Wigan Centre	UK0033	GB0864A	5	9	122	S10
Wigan Centre	UK0033	GB0864A	5	11	124	S10
Wigan Centre	UK0033	GB0864A	5	12	141	S10
Wigan Centre	UK0033	GB0864A	6	9	133	S10
Wigan Centre	UK0033	GB0864A	6	10	160	S10
Wigan Centre	UK0033	GB0864A	6	11	147	S10
Wigan Centre	UK0033	GB0864A	7	1	139	S10
Wigan Centre	UK0033	GB0864A	7	2	171	S10
Wigan Centre	UK0033	GB0864A	7	3	156	S10
Wigan Centre	UK0033	GB0864A	7	4	163	S10
Wigan Centre	UK0033	GB0864A	7	5	152	S10
Wigan Centre	UK0033	GB0864A	7	6	121	S10
Wigan Centre	UK0033	GB0864A	7	17	131	S10
Wigan Centre	UK0033	GB0864A	7	18	137	S10
Wigan Centre	UK0033	GB0864A	7	19	169	S10
Wigan Centre	UK0033	GB0864A	7	20	137	S10
Wigan Centre	UK0033	GB0864A	7	25	137	S10
Wirral Tranmere	UK0020	GB0730A	5	12	125	S10
Wirral Tranmere	UK0020	GB0730A	6	9	154	S10

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
Wirral Tranmere	UK0020	GB0730A	6	10	168	S10
Wirral Tranmere	UK0020	GB0730A	6	11	137	S10
Wirral Tranmere	UK0020	GB0730A	7	2	159	S10
Wirral Tranmere	UK0020	GB0730A	7	3	121	S10
Wirral Tranmere	UK0020	GB0730A	7	4	165	S10
Wirral Tranmere	UK0020	GB0730A	7	5	146	S10
Wirral Tranmere	UK0020	GB0730A	7	6	132	S10
Wirral Tranmere	UK0020	GB0730A	7	17	130	S10
Wirral Tranmere	UK0020	GB0730A	7	18	187	S10
Wolverhampton Centre	UK0002	GB0614A	6	9	138	S10
Wolverhampton Centre	UK0002	GB0614A	6	10	155	S10
Wolverhampton Centre	UK0002	GB0614A	6	11	141	S10
Wolverhampton Centre	UK0002	GB0614A	6	17	124	S10
Wolverhampton Centre	UK0002	GB0614A	7	16	140	S10
Wolverhampton Centre	UK0002	GB0614A	7	17	154	S10
Wolverhampton Centre	UK0002	GB0614A	7	18	138	S10
Wolverhampton Centre	UK0002	GB0614A	7	19	170	S10
Wolverhampton Centre	UK0002	GB0614A	7	20	132	S10
Wolverhampton Centre	UK0002	GB0614A	7	25	134	S10
Wolverhampton Centre	UK0002	GB0614A	7	26	131	S10
Yarner Wood	UK0030	GB0013R	6	8	123	S10
Yarner Wood	UK0030	GB0013R	6	9	146	S10
Yarner Wood	UK0030	GB0013R	6	10	121	S10
Yarner Wood	UK0030	GB0013R	6	17	150	S10
Yarner Wood	UK0030	GB0013R	6	18	121	S10
Yarner Wood	UK0030	GB0013R	7	1	190	S10
Yarner Wood	UK0030	GB0013R	7	2	171	S10
Yarner Wood	UK0030	GB0013R	7	15	124	S10
Yarner Wood	UK0030	GB0013R	7	16	158	S10
Yarner Wood	UK0030	GB0013R	7	17	174	S10
Yarner Wood	UK0030	GB0013R	7	18	213	S10
Yarner Wood	UK0030	GB0013R	7	19	199	S10

Table 3.7- Form 15 Annual statistics of ozone (2002/3/EC, Article 10(2b) and Annex III)

Form 15 Annual statistics of ozone (2002/3/EC, Article 10(2b) and Annex III)							
Station name	Zone code	EoI station code	AOT40 for vegetation protection ($\mu\text{g}/\text{m}^3.\text{h}$)		AOT40 for forest protection ($\mu\text{g}/\text{m}^3.\text{h}$)		Annual average
			Value	Number of valid data	Value	Number of valid data	
Aberdeen	UK0038	GB0729A	3773	1071	5039	2174	48
Aston Hill	UK0042	GB0031R	16643	1082	21802	2108	72
Barnsley Gawber	UK0034	GB0681A	8369	1093	9686	2130	47
Belfast Centre	UK0028	GB0567A	1435	1093	2007	2042	42
Birmingham Centre	UK0002	GB0569A	7414	1060	8398	2108	43
Birmingham Tyburn	UK0002	GB0851A	10875	1093	12016	2130	41
Blackpool Marton	UK0022	GB0882A	13704	1093	19217	2108	58
Bolton	UK0003	GB0654A	9771	1093	13068	2152	46
Bottesford	UK0032	GB0032R	14984	1093	17508	2174	52
Bournemouth	UK0015	GB0741A	13822	1104	16269	2152	52
Bradford Centre	UK0004	GB0689A	4113	1016	4326	2042	37
Brighton Preston Park	UK0010	GB0860A	14585	1093	18071	2086	55
Bury Roadside	UK0003	GB0652A	1465	927	1434	1932	23
Bush Estate	UK0037	GB0033R	3514	1071	6093	2152	58
Cardiff Centre	UK0026	GB0580A	7788	1071	8305	2152	44
Coventry Memorial Park	UK0017	GB0739A	14419	1093	16747	2152	51
Cwmbran	UK0041	GB0744A	12431	1093	14918	2174	55
Derry	UK0043	GB0673A	3058	883	4193	1625	49
Edinburgh St Leonards	UK0025	GB0839A	5451	1071	6671	2152	52
Eskdalemuir	UK0040	GB0002R	8528	1093	11556	2152	58
Exeter Roadside	UK0030	GB0640A	5569	1093	6163	2086	42
Glasgow Centre	UK0024	GB0641A	1398	1071	1583	2152	35
Great Dun Fell	UK0033	GB0035R	8983	1093	9767	2174	63
Harwell	UK0031	GB0036R	15215	883	16148	1932	54
High Muffles	UK0034	GB0014R	16208	795	18483	1823	58
Hull Freetown	UK0018	GB0776A	7644	1093	9547	2174	45
Ladybower	UK0032	GB0037R	8216	1093	9623	2152	50
Leamington Spa	UK0035	GB0643A	14459	1082	16229	2152	46
Leeds Centre	UK0004	GB0584A	5250	1093	6005	2174	40
Leicester Centre	UK0011	GB0597A	11423	1093	13190	2152	43
Leominster	UK0035	GB0861A	10897	1060	14484	2108	55
Lerwick	UK0039	GB0881A	4011	1093	6704	2064	66
Liverpool Speke	UK0006	GB0777A	8761	1082	10590	2086	48
London Bexley	UK0001	GB0608A	10636	1038	12132	2086	43
London Bloomsbury	UK0001	GB0566A	5289	1027	5273	2108	29
London Brent	UK0001	GB0616A	16936	1093	18925	2174	44
London Eltham	UK0001	GB0586A	14216	1016	14948	2086	43
London Harlington	UK0001	GB0837A	13934	983	14503	1998	37
London Hillingdon	UK0001	GB0642A	4526	1060	4837	2130	28
London Lewisham	UK0001	GB0672A	5261	1093	5551	2174	34
London Marylebone Road	UK0001	GB0682A	244	1082	258	2020	17

Form 15 Annual statistics of ozone (2002/3/EC, Article 10(2b) and Annex III)							
Station name	Zone code	EoI station code	AOT40 for vegetation protection ($\mu\text{g}/\text{m}^3 \cdot \text{h}$)		AOT40 for forest protection ($\mu\text{g}/\text{m}^3 \cdot \text{h}$)		Annual average
			Value	Number of valid data	Value	Number of valid data	
London N. Kensington	UK0001	GB0620A	14595	1082	16959	1976	40
London Teddington	UK0001	GB0644A	19763	1093	22800	2174	51
London Wandsworth	UK0001	GB0622A	9239	1093	9558	2174	34
London Westminster	UK0001	GB0743A	10398	1060	11310	2064	38
Lough Navar	UK0043	GB0006R	3255	1082	3971	2152	47
Lullington Heath	UK0031	GB0038R	17438	1093	22622	2130	61
Manchester Piccadilly	UK0003	GB0613A	3854	1093	4073	2108	29
Manchester South	UK0003	GB0649A	4644	1093	4720	2152	33
Market Harborough	UK0032	GB0838A	16511	1071	19100	2152	57
Middlesbrough	UK0013	GB0583A	6823	1071	9011	2108	49
Narberth	UK0041	GB0043R	12121	983	13404	2064	66
Newcastle Centre	UK0005	GB0568A	3928	1093	5398	2174	44
Northampton	UK0032	GB0738A	14252	1038	15912	2086	50
Norwich Centre	UK0029	GB0684A	12800	1104	14331	2174	47
Nottingham Centre	UK0008	GB0646A	7957	1082	8251	2152	39
Port Talbot	UK0027	GB0651A	9570	1071	11798	2152	56
Portsmouth	UK0012	GB0733A	16292	1104	19502	2174	54
Preston	UK0023	GB0731A	12152	1093	15034	2130	50
Reading New Town	UK0016	GB0840A	13643	1027	14801	2086	49
Redcar	UK0013	GB0679A	5894	1049	6715	2042	50
Rochester	UK0031	GB0617A	10559	1093	12818	2174	49
Rotherham Centre	UK0007	GB0677A	2769	1071	3208	1867	30
Salford Eccles	UK0003	GB0660A	9640	949	10255	1976	38
Sandwell West Bromwich	UK0002	GB0698A	9457	1082	10077	2130	42
Sheffield Centre	UK0007	GB0615A	979	1082	1503	2130	33
Sibton	UK0029	GB0039R	15891	1093	19793	2174	57
Somerton	UK0030	GB0044R	12054	983	14678	2064	57
Southampton Centre	UK0019	GB0598A	2608	1093	2788	2064	36
Southend-on-Sea	UK0021	GB0728A	23965	1093	29747	2152	55
St Osyth	UK0029	GB0754A	15201	1093	18709	2108	54
Stoke-on-Trent Centre	UK0014	GB0658A	17421	1060	19733	2086	51
Strath Vaich	UK0039	GB0015R	10108	1027	17637	2108	72
Sunderland Silksworth	UK0036	GB0863A	9247	1082	11477	2174	55
Thurrock	UK0029	GB0645A	10458	1093	11143	2130	41
Weybourne	UK0029	GB0745A	17014	1104	23870	2196	70
Wicken Fen	UK0029	GB0045R	32811	1060	45445	2064	66
Wigan Centre	UK0033	GB0864A	12513	1038	18286	2042	48
Wolverhampton Centre	UK0020	GB0730A	9559	983	12081	2020	50
Yarner Wood	UK0002	GB0614A	6756	1071	7860	2130	45

3.3 RESULTS FOR GIBRALTAR IN 2006

A comparable air quality assessment for ozone is carried out for Gibraltar just as for the rest of the UK and is submitted to the European Commission in a separate questionnaire. The results of this assessment are presented in this section, summarising concentrations in 2006 and including Tables from the submitted questionnaire for Gibraltar. The results for Gibraltar have been based on measured data from the continuous automatic monitoring campaign, no model outputs being available for Gibraltar at this time.

Table 3.8 presented below is from Form 9 of the questionnaire. Exceedence (or otherwise) of the Target Value (TV) and Long-term Objective (LTO) where this exists are indicated by a 'y' for measured exceedences and with an 'm' for modelled exceedences. If both measurements and model estimates show that a threshold has been exceeded then the measurements are regarded as the primary basis for compliance status and 'y' is therefore used. An 'm' in the columns marked >TV, ≤TV; >LTO indicates that modelled concentrations were higher than measured concentrations or on rare occasions that measurements were not available for that zone and modelled values were therefore used. Modelled concentration may be higher than measured concentrations because the modelling studies provide estimates of concentrations over the entire zone. It is possible that the locations of the monitoring sites do not correspond to the location of the highest concentration in the zone. An 'm' in the columns marked ≤LTO indicates that measurements were not available for that zone and modelled values were therefore used.

The results for Gibraltar are summarised in Tables 3.9 and 3.10 in terms of exceedences of Target Values (TV) and Long-term Objectives (LTO).

Table 3.8 - Form 9 List of zones and agglomerations in Gibraltar where levels exceed or do not exceed Target Values or Long-term Objective

Zone	Zone code	Thresholds for health			Thresholds for vegetation		
		>TV	≤TV; >LTO	≤LTO	>TV	≤TV; >LTO	≤LTO
Gibraltar	UK(GIB)		y			y	

Table 3.9 - Summary results of air quality assessment relative to the Target Values for ozone for 2010

Target Value	Number of zones exceeding
Max Daily 8-hour mean Target Value	none
AOT40 Target Value	none

Table 3.10 - Summary results of air quality assessment relative to the Long-term Objectives for ozone

Long-term Objective	Number of zones exceeding
Max Daily 8-hour mean Long-term Objective	1 zone (measured)
AOT40 Long-term Objective	1 zone (measured)

3.4 MEASURED EXCEEDENCES IN GIBRALTAR IN 2006

Forms 13a-c of the questionnaire require reasons associated with the measured exceedences of the LTO, Alert Threshold and Information Threshold to be documented. Available monitoring data shows that neither the Alert Threshold or the Information Threshold were exceeded in Gibraltar in 2006. There were measured exceedences of the LTO in Gibraltar in 2006, the details of which are presented in Table 3.11. Measured annual statistics for ozone are presented in Form 15 of the questionnaire (see Table 3.12). Forms 14a-b relates to measured exceedence of the TVs of which there are none (see Table 3.9).

The Reason Code 'S10' refers to the 'Transport of air pollution originating from sources outside the Member State'.

Table 3.11 - Form 13c Individual exceedences of ozone thresholds (2002/3/EC, Article 10(2b) and Annex III)

- Form 13c Exceedence of ozone Long-term Objective for health protection						
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>Month</i>	<i>Day of month</i>	<i>Daily maximum 8-hour mean concentration ($\mu\text{g}/\text{m}^3$)</i>	<i>Reason code(s)</i>
Gibraltar Bleak House	UK(GIB)	GB0051A	4	3	122	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	4	4	123	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	5	2	123	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	5	26	123	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	6	3	133	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	6	4	135	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	6	5	159	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	6	6	159	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	6	7	143	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	6	8	135	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	6	9	135	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	6	12	132	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	6	13	123	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	7	11	129	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	7	12	125	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	7	13	135	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	7	14	136	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	7	15	136	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	7	16	135	S10
Gibraltar Bleak House	UK(GIB)	GB0051A	7	17	128	S10

Table 3.12- Form 15 Annual statistics of ozone (2002/3/EC, Article 10(2b) and Annex III)

Form 15 Annual statistics of ozone (2002/3/EC, Article 10(2b) and Annex III)							
<i>Station name</i>	<i>Zone code</i>	<i>EoI station code</i>	<i>AOT40 for vegetation protection ($\mu\text{g}/\text{m}^3.\text{h}$)</i>		<i>AOT40 for forest protection ($\mu\text{g}/\text{m}^3.\text{h}$)</i>		<i>Annual average</i>
			<i>Value</i>	<i>Number of valid data</i>	<i>Value</i>	<i>Number of valid data</i>	
Gibraltar Bleak House	UK(GIB)	GB0051A	18759	1082	25619	2152	62

4 Acknowledgements

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APPENDIX 1. NATIONAL NETWORK MONITORING SITES

Table A1.1. UK monitoring sites operating during 2006 for AQDD3 reporting.

EoI station code	Local station code	Zone code	Type of station	Use in relation to Directive 2002/3/EC		
				O ₃	NO ₂	NO _x
GB0729A	Aberdeen	UK0038	U	y	y	y
GB0031R	Aston Hill	UK0042	R	y	y	y
GB0895A	Auchencorth Moss	UK0037	R	y		
GB0681A	Barnsley Gawber	UK0034	U	y	y	y
GB0567A	Belfast Centre	UK0028	U	y	y	y
GB0569A	Birmingham Centre	UK0002	U	y	y	y
GB0851A	Birmingham Tyburn	UK0002	U	y	y	y
GB0882A	Blackpool Marton	UK0022	U	y	y	y
GB0654A	Bolton	UK0003	U	y	y	y
GB0032R	Bottesford	UK0032	S	y		
GB0741A	Bournemouth	UK0015	U	y	y	y
GB0689A	Bradford Centre	UK0004	U	y	y	y
GB0860A	Brighton Preston Park	UK0010	U	y	y	y
GB0884A	Bristol St Paul's	UK0009	U	y	y	y
GB0652A	Bury Roadside	UK0003	U	y	y	y
GB0033R	Bush Estate	UK0037	R	y	y	y
GB0580A	Cardiff Centre	UK0026	U	y	y	y
GB0739A	Coventry Memorial Park	UK0017	U	y	y	y
GB0744A	Cwmbran	UK0041	U	y	y	y
GB0673A	Derry	UK0043	U	y	y	y
GB0839A	Edinburgh St Leonards	UK0025	U	y	y	y
GB0002R	Eskdalemuir	UK0040	R	y	y	y
GB0640A	Exeter Roadside	UK0030	U	y	y	y
GB0885A	Fort William	UK0039	S	y	y	y
GB0641A	Glasgow Centre	UK0024	U	y	y	y
GB0034R	Glazebury	UK0033	S	y	y	y
GB0035R	Great Dun Fell	UK0033	RB	y		
GB0036R	Harwell	UK0031	R	y	y	y
GB0014R	High Muffles	UK0034	R	y	y	y
GB0776A	Hull Freetown	UK0018	U	y	y	y
GB0037R	Ladybower	UK0032	R	y	y	y
GB0643A	Leamington Spa	UK0035	U	y	y	y
GB0584A	Leeds Centre	UK0004	U	y	y	y
GB0597A	Leicester Centre	UK0011	U	y	y	y
GB0861A	Leominster	UK0035	S	y	y	y
GB0881A	Lerwick	UK0039	R	y		
GB0777A	Liverpool Speke	UK0006	U	y	y	y
GB0608A	London Bexley	UK0001	S	y	y	y
GB0566A	London Bloomsbury	UK0001	U	y	y	y
GB0616A	London Brent	UK0001	U	y	y	y
GB0586A	London Eltham	UK0001	S	y	y	y
GB0650A	London Hackney	UK0001	U	y	y	y
GB0638A	London Haringey	UK0001	U	y		
GB0837A	London Harlington	UK0001	U	y	y	y

EoI station code	Local station code	Zone code	Type of station	Use in relation to Directive 2002/3/EC		
				O ₃	NO ₂	NO _x
GB0642A	London Hillingdon	UK0001	S	y	y	y
GB0672A	London Lewisham	UK0001	U	y	y	y
GB0682A	London Marylebone Road	UK0001	U	y	y	y
GB0620A	London N. Kensington	UK0001	U	y	y	y
GB0656A	London Southwark	UK0001	U	y	y	y
GB0644A	London Teddington	UK0001	U	y	y	y
GB0622A	London Wandsworth	UK0001	U	y	y	y
GB0743A	London Westminster	UK0001	U	y	y	y
GB0006R	Lough Navar	UK0043	RB	y		
GB0038R	Lullington Heath	UK0031	R	y	y	y
GB0613A	Manchester Piccadilly	UK0003	U	y	y	y
GB0649A	Manchester South	UK0003	S	y	y	y
GB0838A	Market Harborough	UK0032	R	y	y	y
GB0583A	Middlesbrough	UK0013	U	y	y	y
GB0043R	Narberth	UK0041	RB	y	y	y
GB0568A	Newcastle Centre	UK0005	U	y	y	y
GB0738A	Northampton	UK0032	U	y	y	y
GB0684A	Norwich Centre	UK0029	U	y	y	y
GB0646A	Nottingham Centre	UK0008	U	y	y	y
GB0687A	Plymouth Centre	UK0030	U	y	y	y
GB0651A	Port Talbot	UK0027	U	y	y	y
GB0733A	Portsmouth	UK0012	U	y	y	y
GB0731A	Preston	UK0023	U	y	y	y
GB0840A	Reading New Town	UK0016	U	y	y	y
GB0679A	Redcar	UK0013	S	y	y	y
GB0617A	Rochester	UK0031	R	y	y	y
GB0677A	Rotherham Centre	UK0007	U	y	y	y
GB0660A	Salford Eccles	UK0003	U	y	y	y
GB0698A	Sandwell West Bromwich	UK0002	U	y	y	y
GB0615A	Sheffield Centre	UK0007	U	y	y	y
GB0039R	Sibton	UK0029	RB	y		
GB0044R	Somerton	UK0030	R	y	y	y
GB0598A	Southampton Centre	UK0019	U	y	y	y
GB0728A	Southend-on-Sea	UK0021	U	y	y	y
GB0754A	St Osyth	UK0029	R	y	y	y
GB0658A	Stoke-on-Trent Centre	UK0014	U	y	y	y
GB0015R	Strath Vaich	UK0039	RB	y		
GB0863A	Sunderland Silksworth	UK0036	U	y	y	y
GB0609A	Swansea	UK0027	U	y	y	y
GB0896A	Swansea Roadside	UK0027	U	y	y	y
GB0645A	Thurrock	UK0029	U	y	y	y
GB0745A	Weybourne	UK0029	R	y		
GB0045R	Wicken Fen	UK0029	R	y	y	y
GB0864A	Wigan Centre	UK0033	U	y	y	y
GB0730A	Wirral Tranmere	UK0020	U	y	y	y
GB0614A	Wolverhampton Centre	UK0002	U	y	y	y
GB0013R	Yarner Wood	UK0030	R	y	y	y

Table A1.2. Gibraltar monitoring sites operating during 2005 for AQDD3 reporting.

<i>Eol station code</i>	<i>Local station code</i>	<i>Zone code</i>	<i>Type of station</i>	<i>Use in relation to Directive 2002/3/EC</i>		
				<i>O₃</i>	<i>NO₂</i>	<i>NO_x</i>
GB00051A	Gibraltar Bleak House	UK(GIB)	U	y	y	y

Table A1.3 Data capture rates for sites used in model calibrations for AQDD1-3, 2006

Site	Data Capture (%)							
	SO2	NO2	PM10	CO	Benzene	Lead	O3	PM2,5
Aberdeen	98.8	96.7	94.9	99.1	nm	nm	99	nm
Aston Hill	nm	69.5	nm	nm	nm	nm	92.4	nm
Auchencorth Moss	nm	nm	88.8	nm	nm	nm	16.4	nm
Barnsley 12	89.5	nm	nm	nm	nm	nm	nm	nm
Barnsley Gawber	93	77	nm	77.9	nm	nm	93.3	nm
Bath Roadside	nm	98.2	nm	83.2	nm	nm	nm	nm
Belfast Centre	94.1	90.7	94.6	82.4	nm	nm	92.3	nm
Belfast Clara St	nm	nm	99.2	nm	nm	nm	nm	nm
Belfast East	96.3	nm	nm	nm	nm	nm	nm	nm
Billingham	nm	97.8	nm	nm	nm	nm	nm	nm
Birmingham Centre	96.8	93.9	97.4	95.5	nm	nm	95.6	nm
Birmingham Tyburn	98.6	87.1	94.7	98.7	nm	nm	98.7	nm
Blackpool Marton	87.1	94.5	95.5	93.5	nm	nm	95.2	nm
Bolton	86.1	67.5	97	97.4	nm	nm	97.3	nm
Bournemouth	98.6	93.1	98.9	97.2	nm	nm	98.7	nm
Bradford Centre	90.7	94	94.5	94.2	nm	nm	92.7	nm
Brentford Roadside	nm	86.5	nm	65.3	nm	nm	nm	nm
Brighton Preston Park	nm	98.2	nm	nm	nm	nm	96.3	nm
Brighton Roadside	nm	99.1	nm	98	nm	nm	nm	nm
Brighton Roadside PM10	nm	nm	97	nm	nm	nm	nm	nm
Bristol Old Market	nm	99	nm	97.3	nm	nm	nm	nm
Bristol St Paul's	53.8	53.5	53	53.2	nm	nm	53.9	nm
Bury Roadside	81.6	81.2	86.6	44.5	nm	nm	85.1	nm
Bush Estate	nm	86.8	nm	nm	nm	nm	97.9	nm
Cambridge Roadside	nm	89.7	nm	nm	nm	nm	nm	nm
Camden Kerbside	nm	96.9	86	nm	nm	nm	nm	nm
Canterbury	nm	97.5	99	nm	nm	nm	nm	nm
Cardiff Centre	95.8	97.1	94.9	97.8	89.3	nm	98.2	nm
Coventry Memorial Park	95.3	99.3	99.2	99.2	nm	nm	98.9	nm
Cwmbran	71.3	95.5	98.3	99.3	nm	nm	99.5	nm
Derry	92.7	88.1	96.8	95.3	nm	nm	79.6	nm
Dumfries	nm	94.3	88.5	84.6	nm	nm	nm	nm
Edinburgh St Leonards	98.7	93.8	98.2	97.2	nm	nm	98.5	nm
Eskdalemuir	nm	89.1	nm	nm	nm	nm	98.8	nm
Exeter Roadside	91	97.3	nm	98.7	nm	nm	97	nm
Fort William	nm	42.6	nm	nm	nm	nm	44	nm
Glasgow Centre	90.1	96.1	93	88.7	nm	nm	98.4	nm
Glasgow City Chambers	nm	98.2	nm	98.9	nm	nm	nm	nm
Glasgow Kerbside	nm	92.5	84.9	95.8	92.3	nm	nm	nm
Glazebury	nm	96.6	nm	nm	nm	nm	73.9	nm
Grangemouth	98.1	98	96.9	95.7	nm	nm	nm	nm
Haringey Roadside	nm	85.1	86.5	nm	nm	nm	nm	nm
Harwell	96.3	92.6	98	nm	87.1	nm	93.6	97.9
High Muffles	nm	87.7	nm	nm	nm	nm	89.5	nm
Hove Roadside	99.3	88.5	nm	99.3	nm	nm	nm	nm
Hull Freetown	97.6	86.7	97.6	64.9	nm	nm	97.7	nm
Inverness	nm	99	91	99.2	nm	nm	nm	nm

Site	Data Capture (%)							
	SO2	NO2	PM10	CO	Benzene	Lead	O3	PM2,5
Ladybower	93.4	46.4	nm	nm	nm	nm	94.9	nm
Leamington Spa	87	72.8	98.7	98.7	nm	nm	98.4	nm
Leeds Centre	99.2	91.5	99.1	94	nm	nm	99.2	nm
Leicester Centre	98.6	98.4	98.3	98.5	nm	nm	98.6	nm
Leominster	nm	91.7	nm	nm	nm	nm	96.4	nm
Liverpool Speke	92.6	92	96	94.2	nm	nm	97.2	nm
London A3 Roadside	nm	97.8	98.5	97.6	nm	nm	nm	nm
London Bexley	96.9	92.4	91	97.3	nm	nm	94.5	nm
London Bloomsbury	94.6	93.3	98	95.3	nm	nm	96.1	97.6
London Brent	94.6	98.2	99	98.8	nm	nm	98.8	nm
London Bromley	nm	59.9	nm	nm	nm	nm	nm	nm
London Cromwell Road 2	88.7	90.8	nm	95	nm	nm	nm	nm
London Eltham	97.4	99	96.9	nm	80.5	nm	97.3	nm
London Hackney	nm	83.4	nm	91.7	nm	nm	24.5	nm
London Harlington	nm	98.3	98.8	99	nm	nm	91.5	nm
London Hillingdon	98	94.3	96.9	95.9	nm	nm	98	nm
London Lewisham	97.8	92	nm	nm	nm	nm	99.6	nm
London Marylebone Road	91.3	97.2	97.1	66.4	77.1	nm	95.7	97.8
London N. Kensington	98.8	99.2	99.1	96.6	nm	nm	94.8	nm
London Southwark	75.6	86.1	nm	68.8	nm	nm	39.9	nm
London Teddington	98.5	98.6	nm	nm	nm	nm	98.9	nm
London Wandsworth	nm	97.8	nm	nm	nm	nm	99.3	nm
London Westminster	88.6	96	95.6	41.4	nm	nm	97.2	nm
Lough Navar	nm	nm	98.6	nm	nm	nm	98.8	nm
Lullington Heath	82.1	85.7	nm	nm	nm	nm	89.1	nm
Manchester Piccadilly	95.8	97.4	96.3	95	nm	nm	90.7	nm
Manchester South	96.9	88.1	nm	nm	nm	nm	98.1	nm
Manchester Town Hall	nm	86.9	nm	39.2	nm	nm	nm	nm
Market Harborough	nm	95.8	nm	98.3	nm	nm	95.3	nm
Middlesbrough	98.2	96.3	98.1	92.2	nm	nm	97.6	nm
Narberth	81.5	94	90.3	nm	nm	nm	91.6	nm
Newcastle Centre	98.2	62.9	97.9	98.2	nm	nm	98.2	nm
Northampton	98.7	98.4	95.8	99.3	nm	nm	97.1	nm
Northampton PM10	nm	nm	91.5	nm	nm	nm	nm	nm
Norwich Centre	99.3	99.1	65.5	99.2	nm	nm	99.2	nm
Norwich Forum Roadside	nm	88.8	nm	nm	nm	nm	nm	nm
Nottingham Centre	95.2	98.1	98.2	98.2	nm	nm	98.2	nm
Oxford Centre Roadside	96.5	95.2	nm	96.5	nm	nm	nm	nm
Plymouth Centre	52.9	44.5	44.9	55.6	nm	nm	13.7	nm
Port Talbot	96.8	97.2	90	nm	nm	nm	98.2	nm
Portsmouth	98.2	99.1	98.5	99	nm	nm	99	nm
Preston	97.1	90.3	98	95	nm	nm	95.4	nm
Reading New Town	94.3	71.2	93.9	96	nm	nm	94.4	nm
Redcar	83.8	83.7	86.9	85.3	nm	nm	89.4	nm
Rochester	96.6	92.9	92.3	nm	nm	nm	98.6	98.3
Rotherham Centre	40.6	77.8	nm	nm	nm	nm	90.9	nm
Salford Eccles	88	96.5	95.9	87.3	nm	nm	94.4	nm
Sandwell West Bromwich	96.5	69.4	nm	95.5	nm	nm	98	nm

Site	Data Capture (%)							
	SO2	NO2	PM10	CO	Benzene	Lead	O3	PM2,5
Scunthorpe Town	94.1	nm	96.1	nm	nm	nm	nm	nm
Sheffield Centre	92.9	52.5	97.2	97	nm	nm	96.9	nm
Sheffield Tinsley	nm	98.6	nm	92.8	nm	nm	nm	nm
Somerton	nm	80.5	nm	nm	nm	nm	92.2	nm
Southampton Centre	74	90	89.2	70	nm	nm	94.7	nm
Southend-on-Sea	98.9	97.7	96.6	98.9	nm	nm	98.9	nm
Southwark Roadside	10.4	14	nm	10.7	nm	nm	nm	nm
St Osyth	nm	95	nm	92.2	nm	nm	98	nm
Stockport Shaw Heath	99	83.2	98.9	99	nm	nm	nm	nm
Stockton-on-Tees Yarm	nm	98.9	98	95.8	nm	nm	nm	nm
Stoke-on-Trent Centre	94.7	93.4	96.4	93.9	nm	nm	93.2	nm
Sunderland	97.2	nm	nm	nm	nm	nm	nm	nm
Sunderland Silksworth	nm	91.2	nm	nm	nm	nm	93.7	nm
Swansea	51.7	54.5	56	51.8	nm	nm	55.9	nm
Swansea Roadside	27.9	27.6	21.8	27.9	nm	nm	28	15.2
Thurrock	98.2	92.7	98.2	98.2	nm	nm	98.2	nm
Tower Hamlets Roadside	nm	99.5	nm	88.1	nm	nm	nm	nm
Walsall Alumwell	nm	98	nm	nm	nm	nm	nm	nm
Walsall Willenhall	nm	89.3	nm	nm	nm	nm	nm	nm
West London	nm	94.5	nm	84.1	nm	nm	nm	nm
Wicken Fen	92.1	97.3	nm	nm	nm	nm	86.4	nm
Wigan Centre	94	97.4	94.9	96.5	nm	nm	96.3	nm
Wirral Tranmere	76.5	93.5	94.3	95.8	nm	nm	91.6	nm
Wolverhampton Centre	97.8	94.6	97.9	93.2	nm	nm	97.8	nm
Wrexham	92.4	94.4	95.3	95.5	nm	nm	nm	nm
Yarner Wood	nm	87.8	nm	nm	nm	nm	96.4	nm
Barnsley Gawber HC	nm	nm	nm	nm	99.9	nm	nm	nm
Belfast Centre HC	nm	nm	nm	nm	99.7	nm	nm	nm
Belfast Roadside HC	nm	nm	nm	nm	95.9	nm	nm	nm
Birmingham Roadside HC	nm	nm	nm	nm	99.9	nm	nm	nm
London Bloomsbury HC	nm	nm	nm	nm	100	nm	nm	nm
Bournemouth HC	nm	nm	nm	nm	99.9	nm	nm	nm
Bristol Old Market HC	nm	nm	nm	nm	100	nm	nm	nm
Coventry Memorial Park HC	nm	nm	nm	nm	93.1	nm	nm	nm
Cwmbran HC	nm	nm	nm	nm	100	nm	nm	nm
Edinburgh St Leonards HC	nm	nm	nm	nm	100	nm	nm	nm
Grangemouth HC	nm	nm	nm	nm	93.9	nm	nm	nm
Haringey Roadside HC	nm	nm	nm	nm	100	nm	nm	nm
Hove Roadside HC	nm	nm	nm	nm	98	nm	nm	nm
Hull Freetown HC	nm	nm	nm	nm	81.5	nm	nm	nm
Leamington Spa HC	nm	nm	nm	nm	99.1	nm	nm	nm
Leeds Roadside HC	nm	nm	nm	nm	94.1	nm	nm	nm
Leicester Centre HC	nm	nm	nm	nm	100	nm	nm	nm
Liverpool Speke HC	nm	nm	nm	nm	99.7	nm	nm	nm
Manchester Piccadilly HC	nm	nm	nm	nm	100	nm	nm	nm
Middlesbrough HC	nm	nm	nm	nm	100	nm	nm	nm
Newcastle Centre HC	nm	nm	nm	nm	100	nm	nm	nm
Northampton HC	nm	nm	nm	nm	100	nm	nm	nm

Site	Data Capture (%)							
	SO2	NO2	PM10	CO	Benzene	Lead	O3	PM2,5
Norwich Centre HC	nm	nm	nm	nm	98.3	nm	nm	nm
Nottingham Centre HC	nm	nm	nm	nm	100	nm	nm	nm
Oxford Centre Roadside HC	nm	nm	nm	nm	99.9	nm	nm	nm
Plymouth Centre HC	nm	nm	nm	nm	100	nm	nm	nm
Portsmouth HC	nm	nm	nm	nm	99.2	nm	nm	nm
Reading HC	nm	nm	nm	nm	96.1	nm	nm	nm
Sheffield Centre HC	nm	nm	nm	nm	54.4	nm	nm	nm
Southampton Centre HC	nm	nm	nm	nm	92.5	nm	nm	nm
Southend-on-Sea HC	nm	nm	nm	nm	99.4	nm	nm	nm
Stoke-On-Trent Centre HC	nm	nm	nm	nm	99.9	nm	nm	nm
Wigan Centre HC	nm	nm	nm	nm	89.5	nm	nm	nm
Stockton-on-Tees Yarm HC	nm	nm	nm	nm	100	nm	nm	nm
Cardiff Centre HC	nm	nm	nm	nm	88	nm	nm	nm
Glasgow Kerbside HC	nm	nm	nm	nm	93	nm	nm	nm
Harwell HC	nm	nm	nm	nm	85	nm	nm	nm
London Eltham HC	nm	nm	nm	nm	79	nm	nm	nm
London Marylebone Road HC	nm	nm	nm	nm	75	nm	nm	nm
Leeds Centre HC	nm	nm	nm	nm	73.3	nm	nm	nm
IMI 2	nm	nm	nm	nm	nm	79	nm	nm
Hallen	nm	nm	nm	nm	nm	96	nm	nm
Swansea Metals	nm	nm	nm	nm	nm	98	nm	nm
Avonmouth BZL	nm	nm	nm	nm	nm	98	nm	nm
Sheffield	nm	nm	nm	nm	nm	98	nm	nm
Runcorn Weston Point	nm	nm	nm	nm	nm	89	nm	nm
London Brent Metals	nm	nm	nm	nm	nm	95	nm	nm
London Cromwell Road Metals	nm	nm	nm	nm	nm	94	nm	nm
Central London Metals	nm	nm	nm	nm	nm	90	nm	nm
Leeds	nm	nm	nm	nm	nm	98	nm	nm
Glasgow	nm	nm	nm	nm	nm	91	nm	nm
Eskdalemuir Metals	nm	nm	nm	nm	nm	100	nm	nm
Motherwell	nm	nm	nm	nm	nm	92	nm	nm
Manchester	nm	nm	nm	nm	nm	91	nm	nm
Cardiff	nm	nm	nm	nm	nm	90	nm	nm
Brookside 2	nm	nm	nm	nm	nm	96	nm	nm
Elswick 6	nm	nm	nm	nm	nm	98	nm	nm
London Marylebone Road Metals	nm	nm	nm	nm	nm	94.2	nm	nm
Monkswood	nm	nm	nm	nm	nm	88.5	nm	nm
Cockley Beck	nm	nm	nm	nm	nm	93.4	nm	nm
Auchencorth	nm	nm	nm	nm	nm	100	nm	nm
Banchory	nm	nm	nm	nm	nm	96	nm	nm
Yarner Wood Metals	nm	nm	nm	nm	nm	95.2	nm	nm
Wytham Wood	nm	nm	nm	nm	nm	89	nm	nm
Cwmystwyth	nm	nm	nm	nm	nm	77.7	nm	nm
Heigham Holmes	nm	nm	nm	nm	nm	88.6	nm	nm
Detling	nm	nm	nm	nm	nm	80.4	nm	nm
Beacon Hill	nm	nm	nm	nm	nm	58.2	nm	nm

nm = not measured

APPENDIX 2. MONITORING SITES USED TO VERIFY THE MAPPED ESTIMATES

Table A2.1. Monitoring sites used to verify the mapped estimates

Site	Site Type	Authority
Abingdon	URBAN BACKGROUND	Vale of White Horse DC
Basingstoke Eastrop	URBAN BACKGROUND	Basingstoke & Deane DC
Birmingham Airport	AIRPORT	Birmingham International Airport
Bracknell Foxhill	URBAN BACKGROUND	Bracknell Forest BC
Cardiff Briardene	URBAN BACKGROUND	Cardiff City Council
Folkestone	SUBURBAN	Kent & Medway Air Quality Monitoring Network
Glasgow Waulkmillglen Reservoir	RURAL	Glasgow City Council
Heathrow LHR2	AIRPORT	BAA
Heathrow Main Road	AIRPORT	BAA
Heathrow Oaks Road	AIRPORT	BAA
London Ealing Town Hall	URBAN BACKGROUND	London Air Quality Network
London Hounslow Cranford HS2	URBAN BACKGROUND	London Air Quality Network
Luton Background	URBAN BACKGROUND	Kent & Medway Air Quality Monitoring Network
Maidstone Rural	RURAL	Kent & Medway Air Quality Monitoring Network
Marchlyn Mawr	REMOTE	Gwyneth Council
Newham Wren Close	URBAN BACKGROUND	London Borough of Newham
Newport Malpas Depot	URBAN BACKGROUND	Newport County BC
Oldham West End House	URBAN BACKGROUND	Oldham MBC
Oxford St Ebbes	URBAN BACKGROUND	Oxford City Council
South Holland	RURAL	South Holland DC
Tameside Two Trees School	URBAN BACKGROUND	Tameside MBC
Thanet Rural	RURAL	Kent & Medway Air Quality Monitoring Network
V Glamorgan Fonmon	RURAL	Vale of Glamorgan Council